

Shelve in Stacks S.B.t.

19 Highway Safety Literature

Annual Cumulation 1969
Related Areas Bibliography . . .

HS-820 076
Issues 69-1 through 69-50
January-December 1969



U.S. Department of Transportation / National Highway Safety Bureau

HIGHWAY SAFETY LITERATURE

ANNUAL CUMULATION 1969

RELATED AREAS BIBLIOGRAPHY

Issues 69-1 through 69-50

(January - December 1969)

Published by

National Highway Safety Bureau

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EDITOR'S NOTE: Material published in HIGHWAY SAFETY LITERATURE (HSL) is intended for the information and assistance of the motor vehicle, highway safety community. While brand names, equipment model names and identification, and companies may be mentioned from time to time, this data is included as an information service. Inclusion of this information in the HSL should not, under any circumstances, be construed as an endorsement or an approval by the Department of Transportation of any particular product, course, or equipment.

INTRODUCTION

The Technical Information System of the National Highway Safety Bureau acquires scientific and technical information covering all phases of traffic and motor vehicle safety, especially on those subjects encompassed by the National Traffic and Motor Vehicle Safety Act of 1966, and the National Safety Act of 1966. Each week, citations to these acquisitions are published in HIGHWAY SAFETY LITERATURE.

This publication is a five volume set which cumulates all citations which appeared in HIGHWAY SAFETY LITERATURE during 1969. Each volume covers one broad subject field and is arranged by group according to the NHSB SUBJECT CATEGORY FIELDS AND GROUPS listed below:

NHSB SUBJECT FIELDS AND GROUPS

1/0 ACCIDENTS	HS-820 073	
/1 Emergency Services (11, 15-16)		/4 Governmental Aspects
/2 Injuries		/5 Information Technology
/3 Investigation and Records (10, 14-15)		/6 Insurance
/4 Locations (9, 14)		/7 Mathematical Sciences
		/8 Transportation Systems
2/0 HIGHWAY SAFETY	HS-820 074	5/0 VEHICLE SAFETY
/1 Breakaway Structures		HS-820 077
/2 Communications		* All Federal Motor Vehicle Safety Standards apply to passenger vehicles. An asterisk before a subject group indicates additional types of vehicles to which the indicated standards may apply.
/3 Debris Hazard Control and Cleanup (15-16)		/1 Brake Systems (102, 105-6, 116)
/4 Design and Construction (12, 14)		*/2 Buses, School Buses, and Multipurpose Passenger Vehicles (102-4, 106-8, 111-3, 116, 205-6, 209, 211)
/5 Lighting (14)		*/3 Cycles (3; 108, 112, 116, 205)
/6 Maintenance (12)		/4 Design (14; 101-2, 105, 107, 201)
/7 Meteorological Conditions		/5 Door Systems (201, 206)
/8 Police Traffic Services (15)		/6 Fuel Systems (101, 301)
/9 Traffic Control (13-14)		/7 Glazing Materials (205)
/10 Traffic Courts (7)		/8 Hood Latch Systems (113)
/11 Traffic Records (10)		/9 Inspection (1)
3/0 HUMAN FACTORS	HS-820 075	/10 Lighting Systems (101, 105, 108, 112)
/1 Alcohol (8, 14)		/11 Maintenance and Repairs
/2 Anthropomorphic Data		/12 Manufacturers, Distributors, and Dealers
/3 Cyclists		/13 Mirrors and Mountings (107, 111)
/4 Driver Behavior		/14 Occupant Protection (15; 201-4, 207-10)
/5 Driver Education (4, 14)		/15 Propulsion Systems
/6 Driver Licensing (5, 10, 14)		/16 Registration (2, 10)
/7 Drugs Other Than Alcohol		/17 Safety Defect Control
/8 Environmental Effects		/18 Steering Control System (101, 107, 203-4)
/9 Impaired Drivers		/19 Theft Protection (114-5)
/10 Passengers		*/20 Trucks and Trailers (102-4, 107-8, 112-3, 116, 205-6, 209)
/11 Pedestrians (14-15)		/21 Used Vehicles
/12 Vision		/22 Wheel Systems (109-10, 211)
4/0 OTHER SAFETY-RELATED AREAS	HS-820 076	/23 Windshield-Related Systems (101, 103-4, 107, 205, 212)

SAMPLE ENTRIES

Object Category Array

HS-800 069 Fld. 5/22

B Accession no. DEVELOPMENT OF A TEXTILE
Cord Load Transducer

of document by B. E. Bourland, S. K. Clark, R. N.
Dodge

Corporate author Michigan Univ., Ann Arbor. Tire and
Suspension Systems Research Group,

D Code number M43800

ation

lication date May 1968 39p
Contract CST377
Report no. 01193-1-T

tract A technique is described for building
directly into a tire cord a small force
transducer to measure tire cord loads
directly....

Search terms: Tire loads, Trans-
ducers, Tire design, Pneumatic tires

AVAILABILITY: From CFSTI

HS-004 497 Fld. 5/19 15

AUTO THEFT--THE PROBLEM
AND THE CHALLENGE

by Thomas A. Williams, Sr.

Journal citation ... Published in *FBI Law Enforcement
Bulletin* v37 n12 p15-7 (Dec 1968)

Gives figures on the extent of the
auto theft problem and comments on
antitheft devices available now or in
the planning stage.

Search terms: Theft, Theft protec-
tion, Stolen cars

AVAILABILITY OF DOCUMENTS

Department of Transportation personnel may borrow copies of
publication directly from the NBS, Technical Reference
Division (Phone: 426-2768 or 426-2769). Non-DOT personnel
should contact their company or agency libraries for assistance.

Journals cited can be found in most research libraries.
Reprints of journal articles can often be obtained without
charge from the individual author, whose affiliation is usually
given in the article.

Contractors reports and other documents can usually be ob-
tained as indicated under AVAILABILITY. However, there is no
certainty that retention copies will be available for more
than a limited period after a document is issued.

The more common distribution sources are identified by symbols
which are explained below:

CFSTI: Clearinghouse for Federal Scientific and Technical
Information, Springfield, Va. 22151. Order by accession
number: AD or PB; order NBS contractors reports by HS
numbers if a PB number is not given. Prepayment is required

by CFSTI coupon (GPO coupons are not acceptable), check, or money order (made payable to the Clearinghouse). HS (Paper copy; full size original or reduced facsimile) \$3.00
MF (Microfiche; approximately 4x6" negative sheet file; special reader required) \$0.65.

GPO: Superintendent of Documents U.S. Government Printing Office, Washington, D.C. 20402. Give corporate author, title, personal author, and report number. Prepayment is required by GPO coupon (CFSTI coupons are not acceptable), check, or money order (made payable to the Superintendent of Documents).

HRB: Highway Research Board, National Academy of Sciences, 2101 Constitution Avenue, N.W., Washington, D.C. 20418.

FHWA-OPA: Federal Highway Administration, Washington, D. C. 20591. Office of Public Affairs.

NHSB: National Highway Safety Bureau, Washington, D. C. 20591.

SAE: Society of Automotive Engineers, 2 Pennsylvania Plaza, New York, N.Y. 10001. Prices given are list; discounts are available to members and sometimes to libraries and U.S. Government agencies. Prepayment is required; orders without payment are subject to \$1 handling charge.

UMF: University Microfilms, 300 North Zeeb Road, Ann Arbor, Michigan 48106. Order dissertations by order number and author's name. Do not send payment with order. Invoice sent with shipment will include cost of order plus handling and shipping charges. HC (Bound, soft cover, xerographic copies, approx. 5 1/2 x 8 1/2"); MF (positive 35mm microfilm).

OTHER NHSB TECHNICAL INFORMATION SYSTEM PUBLICATION

Available in single copies at no cost from DOT, NHSB, Technical Information System, Room 5116G, Washington, D.C. 20591.

NHSB Subject Category List, September 1969 - HS-820 051
NHSB Corporate Author Authority List, January 1970 - HS-820 069
NHSB Thesaurus Rules and Conventions, January 1970

In Process:

NHSB Guidelines for Subject Analysis of Documents, 1970
NHSB Thesaurus of Traffic and Motor Vehicle Safety Terms, June 1970
NHSB Cumulative Indexes.

4/0 OTHER SAFETY-RELATED AREAS

HS-004 928 Fld. 2/0,4/0

COLLEGES AND UNIVERSITIES HIGHWAY TRAFFIC AND SAFETY CENTERS
by James E. Aaron, ed., Dale O. Ritzel, ed. National Safety Council, Chicago, Ill. and Southern Illinois Univ., Carbondale

1968 51p
Report no. Mono-24

Two articles describe the organization and outlook of university safety centers. Objectives, programs, staff composition, student composition, sponsorship for 16 college and university highway traffic centers are surveyed.

Search terms: Traffic safety programs, Universities, Centers

AVAILABILITY: From corporate author (Includes HS-004 929 to HS-004 930)

HS-004 929 Fld. 2/0,4/0

ORGANIZING THE UNIVERSITY SAFETY CENTER
by James E. Aaron
Southern Illinois Univ., Carbondale. Dept. of Health Education

Administrative alignment, financing, programming (3 areas are considered: academic, service, research), and staffing the university safety education center are explained.

Search terms: Management, Traffic safety programs, Universities, Financing, Personnel

AVAILABILITY: In National Safety Council. COLLEGES AND UNIVERSITIES HIGHWAY TRAFFIC AND SAFETY CENTERS, 1968, p1-5 (HS-004 928)

HS-004 930 Fld. 2/0,4/0

OUTLOOK: THE GROWTH AND ROLE OF CENTERS IN THE DECADE AHEAD

by Gordon H. Sheehe
Michigan State Univ., East Lansing. Highway Traffic Safety Center

The overriding objective of the university traffic safety center is to help provide safer and more efficient motor vehicle travel through 5 major activity types: education, training, special studies, advising the technical community, providing information and materials.

Search terms: Traffic safety programs, Universities

AVAILABILITY: In National Safety Council. COLLEGES AND UNIVERSITIES HIGHWAY TRAFFIC AND SAFETY CENTERS, 1968, p6-13 (HS-004 928)

HS-006 125 Fld. 4/0

NEEDED: A BREAKTHROUGH IN THE RESEARCH BARRIER. THE PROBLEM IS ACCESSIBILITY. THE KEY IS IMPLEMENTATION

by Bruce B. Madsen; Douglas W. Toms

Published in *Traffic Safety* v69 n4 p22-3, 35-40 (Apr 1969)

Two practitioners of traffic safety, one at the state and the other at the local level, discuss problems facing those who use traffic safety information. Problems include the technical and obscure language used in research reports, lack of communication between practitioners and researchers, small percentage of information of value for application at the local level, and failure of information to reach the user. Suggestions for improvement include implementation of traffic safety research into action by improving communications, developing research activities that are directly applicable to existing problems, and better dissemination of research results which can be readily understood and used.

Search terms: Traffic safety; Safety programs; Community support; Highway safety; Safety research; Information systems; Communicating

4/1 CODES AND LAWS

HS-004 386 Fld. 4/1,3/6,1/3

MAJOR CHANGES MADE IN
UNIFORM VEHICLE CODE:
A REPORT
by Robert H. Reeder

Published in Traffic
Digest and Review v16
n9 p3-8 (Sep 1968)

National Committee on
Uniform Traffic Laws and
Ordinances met in July 1968
to make first major revision
of Uniform Vehicle Code
since 1962. Changes will
deal with rules of the
road and driver licensing.
Significant changes are:
fleeing from police as an
offense, raising driver
licensing age to 18, and
rules on motorcycle
operation.

Search terms: Motorcycle
safety, Driver license
laws, Age factor in driv-
ing, Driving, Uniform
Vehicle Code, Law
uniformity, Legislation,
National Committee on
Uniform Traffic Laws
and Ordinances, Police
chases

HS-810 011 Fld. 4/1

REMARKS. [HIGHWAY SAFETY
HISTORY AND LEGISLATION]
by William Haddon, Jr.
National Highway Safety
Bureau, Washington, D. C.

11 Oct 1967 6p
Presented at the 11th
Annual Stapp Conference,
Anaheim, Calif.

Relates history of the
highway safety movement
to the National Highway
Safety Bureau's role in
translating the two
naturally sponsored
safety acts in action.

Search terms: Highway
safety, Legislation,
Speeches, National
Highway Safety Bureau

AVAILABILITY: From
corporate author

HS-810 012 Fld. 4/1

REMARKS. [HIGHWAY SAFETY
LEGISLATION AND COMMUNITY
SUPPORT]

by William Haddon, Jr.
National Highway Safety
Bureau, Washington, D. C.

23 Oct 1967 9p
Presented at the
General Traffic Session
of the National Safety
Congress, Chicago, Ill.

Emphasizes the increasing
need for participation by
state and local governments
and private organizations
in effecting the recent
highway safety legislation.

Search terms: State
government, Highway
safety, Legislation,
Speeches, United
States Government

AVAILABILITY: From
corporate author

HS-004 472 Fld. 2/0,4/1

HIGHWAY TRANSPORTATION
LEGISLATION IN 1966 (A
SUMMARY OF FEDERAL AND STATE
ACTIVITY)
Anonymous
National Highway Users Con-
ference, Washington, D.C.

[1967] 33p

Summarizes Federal and State
legislation, uniform laws
and motor vehicle regulations,
Federal regulatory provisions,
driver licensing and control,
equipment requirements, etc.

Search terms: Highway trans-
portation, Legislation,
State government, United
States Government, Highway
safety, Mass transportation,
Law uniformity, Safety
belts, Safety standards,
Motor vehicle safety,
Tire safety, Taxes, Driver
licensing, Financial respon-
sibility, Speed limits,
Traffic control devices,
Air pollution control,
Brakes (motion arresters),
Lighting equipment, Mirrors,
Safety inspection, Weight
limits, Size limits

AVAILABILITY: From corporate
author

HS-004 536 Fld. 2/4,4/1

THE HIGHWAY SPOT IMPROVEMENT
PROGRAM: A CRITICAL REVIEW
by Daniel J. Minahan
Michigan Univ., Ann Arbor.
Highway Safety Research Inst.

[Dec 1967] 93p 77refs
Report no. PhF-2

Includes a chronological
digest of federal aid
for highways from the
1700's to 1966

This study undertakes a
critical review of the
National Highway Spot
Improvement Program and
examines technical,
administrative, operational
and economic factors. A
continued research and
development program is
recommended in the areas
of accident reporting,
benefit-cost analysis,
highway design, to obtain
stated objectives.

Search terms: Highway
design, Safety programs,
Accident locations,
Accident reports,
State governments,
United States Government,
Legislation, Spot
improvement program*,
Highway design, Hazards,
Local governments

AVAILABILITY: From
corporate author

HS-004 577 Fld. 2/0,4/1

BASE YEAR HIGHWAY SAFETY
EXPENDITURES AND COST
ESTIMATES FOR IMPLEMENTING
THE HIGHWAY SAFETY ACT
OF 1966 IN VIRGINIA
by Ira F. Doorn,
Wayne S. Ferguson,
L. Ellis Walton,
Charles Meachum,
Dave Greenberg
Virginia. Highway
Research Council, Charlottes-
ville

Nov 1967 16p

This study includes: 1) a

4/1 Codes and Laws (Cont.)

HS-004-577 (Cont.)

determination of the amount of State and local expenditures for highway safety in Virginia, and 2) an estimate of costs for fiscal years 1967-1976. Basic approach of the study was: an examination of each of the Safety Standards; a legal analysis of Virginia's compliance; a compilation of areas in which Virginia is not meeting Federal Safety Standards.

Search terms: Highway Safety Act of 1966*, Virginia*, Highway safety, Cost data, Expenses, State Government, Safety standards, Compliance procedures

AVAILABILITY: From corporate author

HS-004 654 Fld. 4/1,2/0

RULES OF THE ROAD--REVISED, 1968
National Committee on Uniform Traffic Laws and Ordinances, Washington, D.C.

Published in Traffic Laws Commentary n68-1 p1-44 (31 Oct 1968)

Explains rules and their revisions on following: turning on red light, right of way in intersections and for pedestrians on sidewalks, pedestrian rules, basic speed rule, rules for motorcycles, and miscellaneous revisions dealing with accidents involving unattended property, reversible one-way traffic, restrictions on use of controlled-access highways, racing on highways, chemical test for blood alcohol, eluding police, and authority to remove vehicles. Text of the rules is included.

Search terms: Turning (direction change), Intersections, Pedestrians, Traffic signals, Motorcycles, Speed, One way streets, Controlled access highways, Access control, Right-of-way (traffic rules)*, Accident factors,

Reckless driving, Blood alcohol levels*, Police chases*, Police traffic services, Regulations, Traffic laws

HS-004 655 Fld. 4/1,1/3,3/1

LEGAL PROBLEMS INVOLVED IN THE DEVELOPMENT OF LEGISLATION by J. Dudley Digges

Published in Maryland State Medical Journal v16 p63-6 (Jan 1967)

Judicial processes are breaking down because of caseloads 85% of which are concerned with motor vehicle accidents. Discusses implied consent laws providing for blood analysis of suspected drunk drivers. Constitutionality of these laws has been upheld by the Supreme Court. Suggests that ways be set up to revoke driver licenses without court procedure.

Search terms: Drinking drivers, Implied consent laws*, Blood alcohol levels*, Courts, Driver license revocation, Legal factors, Motor vehicle accidents, Supreme Court*

HS-004 700 Fld. 4/1

FREEDOMS FOR MOTORISTS by Lewis B. Scott

Published in American Motorist v37 n7 p8-9 (Nov 1968)

Suggests that traffic violators are too often treated unfairly and suggests a new concept in traffic courts to remedy the situation. Discusses the argument on whether a driver's license is a right or a privilege, and whether it is a violation of "due process" to suspend it. Suggests that traffic violations should not be handled as crimes and that traffic courts should be replaced by informal hearings.

Search terms: Legal

rights, Legal factors, Traffic violations, Traffic courts, Driver license suspension, Driver license revocation, Driver licensing, Violators

HS-004 773 Fld. 4/1,2/3

GUIDE TO TRANSPORTATION OF EXPLOSIVES AND OTHER DANGEROUS ARTICLES INCLUDING DRIVER'S GUIDE
Private Carrier Conference, Inc., Washington, D. C.

1966 45p
Includes revision sheet dated 16 Jan 1967

Interprets safety regulations concerning motor vehicle transport of dangerous articles: explosives, flammables, poisons, oxidizing materials, ammunition, chemicals or other articles requiring special handling, labels or placards.

Search terms: Carriers, Motor vehicles, Hazardous materials*, Regulations, Safety measures, Highway safety

AVAILABILITY: From corporate author \$2.50

HS-004 774 Fld. 4/1

HIGHWAY TRANSPORTATION LEGISLATION IN 1968. A SUMMARY OF FEDERAL AND STATE ACTIVITY by William Henderson, Robert L. Gerdes, Marsha Lynn Golden, Stephen E. O'Toole National Highway Users Conference, Washington, D. C.

1968 39p

This digest summarizes federal and state laws affecting highway transportation. Some of the areas covered are: taxation and finance, mass transit, auto insurance, uniform laws. Trend towards increasing Federal Government interest in safety was noted.

Codes and Laws (Cont.)

774 (Cont.)

Search terms: Legislation, United States Government, State government, Highway transportation, Federal-state relationships*, Motor, Mass transportation, Motor license laws, Interstate compacts, Motor vehicle laws

ABILITY: From corporate author

4 775 Fld. 4/1,2/9

TE ON UNIFORM SIGNS
MUNICIPAL ACTION
rule D. Banks

shed in Public Works
n2 p102-3 (Feb 1969)

cost of standardization suitable program to the state requirements uniform signing were parts of a study made consulting traffic engineers retained by the of Galesburg, Illinois.

Search terms: Signs displays, Design standards, Cost data, laws, Traffic, Urban areas, ois*, Local mment*

4 776 Fld. 4/1

JUDGMENT IN AUTO-
NEGLIGENCE CASES:
PROCEDURAL ANALYSIS AND
STIONS

arris D. Forkosch

shed in Cornell Law
v53 n5 p814-31
968)

cklog of cases in work, as in other states, reached such proportions few means need to be for the courts to move along. The suggestion here is to grant summary judgment more often. It be hoped that as in types of auto- nce cases continue to

recur the courts will more readily infer negligence and grant summary judgment. A number of cases are discussed in which the difficulty of proving actual negligence is a problem.

Search terms: Negligence*, Legal factors, Courts, Automobile accidents, Accident responsibility, New York*

HS-004 830 Fld. 4/1

1968 HIGHWAY STATUS REPORT:
MOTOR VEHICLE SIZE AND

WEIGHT LIMITATIONS
Anonymous

Published in Transportation and Distribution Management
v8 n7 p27-30 (Jul 1968)

Studies proposed congressional legislation to increase maximum allowable width and higher gross weights of trucks and buses travelling on interstate highways. Width increases would be from 96 inches to 102 inches; gross weights computed on vehicle length and number of axles. If passed by Congress these limits would serve as a ceiling above which States could not raise their size and weight laws. However, if a State has higher limits presently in effect the State's existing law becomes top limit. Tables list size and weight limits for truck-trailer combinations by State, and proposed range of permissible gross loads.

Search terms: Interstate highway system, Cargo transportation, Size limits*, Regulations, Legislation, Vehicle size, State government, Weight limits, Trucks, Buses (vehicles), Trailers, Vehicle weight

HS-004 831 Fld. 4/1,2/0

THE COMMISSIONER FOR MOTOR TRANSPORT, NEW SOUTH WALES.
ANNUAL REPORT FOR YEAR ENDING THIRTIETH JUNE, 1967.
New South Wales. Dept. of Motor Transport, Sydney

(Australia)

4 Dec 1967 80p

Includes statistics concerning vehicle registrations, traffic facilities, road accidents. Summarizes activities of the New South Wales Dept. of Motor Transport in: legislation, road safety, driver licensing. Presents charts on accidents and casualties (fatalities and non-fatalities).

Search terms: Australia*, Statistics, Traffic accidents, Legislation, Highway safety, Fatalities, Injuries, Motor vehicle registration, Driver licensing

AVAILABILITY: From corporate author

HS-004 832 Fld. 4/1

OPINION POLL OF CALIFORNIA
LICENSED DRIVERS
by Earl F. Campbell,
J. Arthur Rude, Royal A.
Neilson
Field Research Corp.,
San Francisco, Calif. and
California Traffic Safety
Foundation, San Francisco

Jan 1965 196p
Prepared in cooperation with Calif. Dept. of Motor Vehicles, and supported by a grant from Standard Oil Co. of Calif.

Licensed drivers in California were surveyed through questionnaire on aspects of the traffic safety program: police services, penalties for drunk driving, blood alcohol test, leniency of traffic laws, etc.

Search terms: Traffic safety, Public opinion, California*, Automatic data processing, Driver records, Questionnaires, Data Acquisition, Driver characteristics, Police

traffic services, Drinking drivers, Blood alcohol levels*

AVAILABILITY: From corporate author

4/1 Codes and Laws (Cont.)

HS-004 883 Fld. 4/1

JOINT LEGISLATIVE COMMITTEE
ON MOTOR VEHICLES, TRAFFIC
AND HIGHWAY SAFETY. REPORT
(FOR) 1967-1968

New York (State). Joint
Legislative Committee on
Motor Vehicles, Traffic
and Highway Safety, Albany

1968 67p
Report no. Legislative Doc-81
(1967), Legislative Doc-83
(1968)

Report covers the work and
study programs of the Committee.
Projects expedited where: vehic-
ular safety improvement and
the Safety Car. Other programs
included vehicle pollution
control and highway planning
review activities. 1968 New
York State laws affecting
motor vehicles are summarized.

Search terms: New York*,
Electric vehicles,
Legislation, Traffic
safety, Safety programs,
Motor vehicle design,
Safety cars, Motorcycle
safety, Air pollution
control

AVAILABILITY: From
corporate author

HS-004 884 Fld. 4/1,2/8

FOR GREATER TRAFFIC SAFETY
by Quinn Tamm

Published in Traffic Engineering
v37 n8 p23-4 (May 1967)

The key elements in greater
traffic safety are engineer-
ing, enforcement, and educa-
tion. Police often have major
responsibility in all three
areas, as smaller cities
lack traffic engineers.
Closer cooperation is needed
between traffic engineers and
law enforcement officials.
Each group can provide the
other with much useful
information.

Search terms: Traffic
engineering, Traffic law
enforcement, Data
acquisition, Traffic
safety, Education,
Engineers*, Police

HS-004 885 Fld. 4/1

UNIFORM VEHICLE CODE AND
MODEL TRAFFIC ORDINANCE.
REVISED--1968

National Committee on Uniform
Traffic Laws and Ordinances,
Washington, D. C.

1968 376p

Contains the 1968 revised
editions of the Uniform
Vehicle Code and Model
Traffic Ordinance. Future
revisions will be published
in a pocket supplement to be
used with this book.

Nineteen chapters of the Code
cover: definition of terms
used; administration of high-
way safety; certificates of
title and registration of
vehicles; antitheft laws;
dealers, wreckers, and
rebuilders; drivers' licenses;
financial responsibility;
rental vehicles; civil
liability; accidents and
accident reports; rules of the
road; equipment of vehicles;
inspection of vehicles; size,
weight, and load; respective
powers of state and local
authorities; arrest procedures;
penalties and disposition of
fines and forfeitures; records
and reports of convictions;
and the effect of and short
title of the act.

Search terms: Traffic
laws, Motor vehicle laws,
State government, Local
government*, Uniform Vehicle
Code*, Model Traffic Ordinance*

AVAILABILITY: From corporate
author: 525 School Street,
S. W., 20024 \$5.00

HS-004 947 Fld. 4/1,2/3

DANGEROUS ARTICLE HANDLING;
A GUIDE FOR THE PROPER
HANDLING AND TRANSPORTATION
OF DANGEROUS ARTICLES BY
MOTOR CARRIER
Arizona Highway Dept.,
Phoenix

Apr 1968 70p

Revision of report dated
Nov. 1967. Includes fire
control and emergency
procedure in case of
accident.

Purpose of this manual is to

assist motor carriers to hold
to a minimum difficulties
which arise in the transpor-
tation of articles listed as
dangerous in the Interstate
Commerce Commission's regula-
tions on transportation of
explosives and other dangerous
articles. Manual is amended
to include fire control and
emergency procedure in case
of an accident. Dangerous
articles are classified and
listed, labeling and marking
requirements outlined, load-
ing and unloading procedures
explained.

Search terms: Hazardous
materials*, Trucks, Regula-
tions, Explosives*, Fire
safety, Accident protection,
Hazards, Cargo transportation
Truck accidents, Safety
measures, Interstate
Commerce Commission*

AVAILABILITY: From
corporate author

HS-004 973 Fld. 4/1,3/6

THE ONE LICENSE CONCEPT
National Committee on Uniform
Traffic Laws and Ordinances,
Washington, D. C.

Published in Traffic Laws
Commentary n6 pl-17
(28 Aug 1963)

Early data on state adoption
of the "one license" concept
(issued by state of residence
with driver surrendering all
other driver licenses).

Search terms: Driver license
laws, State laws, Law
uniformity, Uniform
Vehicle Code*

HS-004 974 Fld. 4/1,2/3

SAFETY PROCEDURES TO BE
USED TO PROTECT THE PUBLIC
IN CASE OF ACCIDENTS INVOLV-
ING ROCKET PROPELLANT CHEM-
ICALS. LIST AND METHODS
Arizona. Highway Dept.,
Phoenix

28 Dec 1967 18p
Compiled by City of
Phoenix Fire Dept. Training
Section.

Contains a list and index

4/1 Codes and Laws (Cont.)

HS-004-974 (Cont.)

of chemicals, a glossary of terms, and a table of rocket propellant chemicals giving name, formula, synonym, class, toxicity, fire hazard and fire control procedures, and shipping regulations.

Search terms: Accident protection, Hazardous materials*, Fire prevention, Fires, Fire protection, Cargo transportation, Tanks (containers), Trucks, Rocket propellants*

AVAILABILITY: From corporate author

HS-005 028 Fld. 4/1,3/6

DISCRETIONARY SUSPENSION OF DRIVERS' LICENSES UPHELD by Edward C. Fisher

Published in Traffic Digest and Review v16 n12 p18-20 (Dec 1968) 12 refs

The authority of a driver licensing administrator to hold hearings and take action suspending a motorist's license is a powerful and effective method of removing unqualified drivers from the highways. The Supreme Court of the United States in effect upheld such discretionary suspensions when it refused to review a decision of the Illinois Supreme Court.

Search terms: Courts, Driver licensing, Administrative procedures, Driver license laws, Driver license suspension, Driver license revocation, State laws, Illinois*, Supreme Court*

HS-005 029 Fld. 4/1.

THE NATIONAL COMMITTEE ON UNIFORM TRAFFIC LAWS AND ORDINANCES by Robert L. Morris

Published in Traffic Engineering v36 n6 p41,43-4 (Mar 1966)

Describes the work of a committee formed to promote uniform traffic laws among states, counties, and cities. The committee provides the Uniform Vehicle Code as a standard for states and the Model Traffic Ordinance as a guide for municipalities. It also publishes Traffic Laws Commentary and Traffic Laws Annual. Uniformity of traffic laws would enhance acceptance of the law and increase safety.

Search terms: National Committee on Uniform Traffic Laws and Ordinances*, Uniform Vehicle Code*, Model Traffic Ordinance*, Law uniformity, Traffic laws, Community support, Highway safety

HS-005 032 Fld. 5/2,4/1,3/6

TRANSPORTATION HANDBOOK Wisconsin. Dept. of Public Instruction, Madison

Jan 1969 32p

This manual covers responsibilities of the school transportation team: the school board, the administrator, the driver and rider. Examples range from contract bids, school bus specifications to safety tips for school children and Walt Disney safety posters.

Search terms: School bus drivers, School traffic safety, School buses, Wisconsin*, School bus passengers, Driver license standards

AVAILABILITY: From corporate author

HS-005 067 Fld. 2/9, 4/1

TRAFFIC CONTROL DEVICES—LIABILITY IN ILLINOIS FOR FAILURE TO PROPERLY INSTALL AND MAINTAIN

by Lester A. Bonaguro

Published in Traffic Digest & Review v17 n2 p18-24 (Feb 1969)

Failure to install traffic control devices properly and maintain them can result in liability on the part of

the state, local governmental units, and government employees. The importance of traffic control devices in the movement of traffic and the reliance placed upon them by drivers should make traffic engineers more aware of their responsibility to the public. Points of law involved with these devices are outlined.

Search terms: Legal factors, Traffic control devices, State government, Local government*, Driver behavior, Traffic flow, Traffic engineering, Illinois*, Negligence*, Liability*, State laws

HS-005 070 Fld. 3/4, 4/1

STAY OUT OF COURT...AND THE HOSPITAL

by E. D. Fales, Jr.

Published in Family Safety v28 n1 p26-8 (Spr 1969)

Recent court decisions in automobile accident cases reveal changing interpretations of traffic laws by both judges and juries. This article should make the motorist a safer driver, both physically and legally.

Search terms: Traffic courts, Acquittals, Convictions, Liability*, Traffic law, Accident responsibility, Insurance claims, State laws

HS-005 073 Fld. 3/6, 4/1

DRIVER LICENSING REVISIONS

National Committee on Uniform Traffic Laws and Ordinances, Washington, D.C.

Published in Traffic Laws Commentary n68-2 (29 Nov 1968)

Contract FH-11-6869

Reports on revisions on driver licensing provisions of the Uniform Vehicle Code. Covers the basis for licensing, the one license concept, the increase in minimum age, license renewal, revocation and suspension, the use of medical advisory boards, interstate aspects of driver misconduct, licensing of commercial driving schools. Gives the text of these provisions and of the pertinent federal safety standard on licensing.

Search terms: Driver license standards, Driver licensing, Age factor in driving, Driver license examination,

4/1 Codes and Laws (Cont.)

HS-005-073 (Cont.)

Driver license renewal, Medical factors, Driver physical fitness, Driver license revocation, Driver license suspension, Driver education, Safety standards, Interstate compacts, Out-of-state drivers, Uniform Vehicle Code*

HS-005 074 Fld. 4/1, 5/4

SECRET WEAPON FOR HIGHWAY SAFETY? THE TRIAL BAR

by Albert Averbach

Published in *Trial* v5 n1 p58-9, 62 (Dec 1968-Jan 1969) 9 refs

Suggests that progress in highway safety and automobile design can be directly credited to trial lawyers who have won suits for damages against auto manufacturers. Discusses various cases in which manufacturers were held liable for accidents and injuries attributed to defective vehicles. Successful lawsuits can do more to place the burden on car manufacturers to build safe cars than any other single factor. The law is not waiting for industry to police itself on safety.

Search terms: Legal responsibility*, Liability*, Highway safety, Safety design, Defective vehicles, Motor vehicle design, Accidents, Injuries, Automotive industry

HS-005 124 Fld. 4/1

MOTOR VEHICLE LAW OFFENSES FOR WHICH CONVICTIONS MOST COMMONLY OCCUR AND THEIR PUNISHMENTS

North Carolina Univ., Chapel Hill. Inst. of Government

Jan 1968 37p

Lists the references to the general statutes applying to an offense, the description of the offense, the maximum punishment which can be given, and whether suspension or revocation of license is applicable to the offense. Introduction gives a schedule of point values for certain offenses and a discussion of how fines, punishments, suspensions, and

revocations are applied.

Search terms: North Carolina*, Driver license suspension, Driver license revocation, Penalties, Fines (penalties), Traffic violations, Point systems, Traffic laws, Motor vehicle laws, Financial responsibility

AVAILABILITY: Corporate author

HS-800 105 Fld. 3/6, 4/1

DRIVER LICENSING AND PERFORMANCE. VOL. 2, SURVEY OF STATE PRACTICES

Spindletop Research, Inc., Lexington, Ky.

1 Oct 1968 137p
Contract FH-11-6533
Report no. 224-Vol-2; PB-183 528

Surveys the states' practices in driver licensing, driver improvement, and driver record keeping. Includes license examination procedures, reexamination procedures, identification and improvement of problem drivers, and the organization of the licensing agencies.

Search terms: Driver licensing, Driver Improvement, Driver records, State government, Driver license examination, Problem drivers, Driver license examiners

AVAILABILITY: CFSTI as PB-183 528

HS-005 160 Fld. 3/1; 4/1

IMPLIED CONSENT LAW: PHYSICIANS WARNED OF POSSIBLE CONSEQUENCES OF WITHDRAWING BLOOD FOR DRUNK DRIVING TEST

Anonymous

Ohio State Medical Journal v64 p605-8 (May 1968)

Before withdrawing blood, the physician must be satisfied that the person has given his consent and understands the consequences. In Ohio, physicians have no immunity from civil liability for the withdrawal of blood. Suggests that the Ohio law be amended to provide this immunity and to prevent blood testing of persons taking anticoagulants or afflicted with hemophilia. Text of

pertinent provisions of the law is quoted.

Search terms: Drinking drivers; Implied consent laws*; Physicians*; Blood alcohol levels*; Legal responsibility*; Hemophilia*; Anticoagulants*; Ohio*

HS-005 162 Fld. 3/1; 4/1

0.15 PER CENT ACCESSORIES

by George A. Stephens

Published in *Traffic Digest and Review* v12 n6 p10-1 (Jun 1964)

Suggests that states and cities using a blood alcohol level of 0.15% as the standard for drunk driving have made a serious error, and that 0.05% should be the figure. Calls for a campaign of public demonstrations, good courtroom presentations, and in-service training for police, and changes in legislation to lower the figure to 0.05%. Discusses conditions in North Carolina, which has changed the blood alcohol percentage to 0.10%.

Search terms: Blood alcohol levels*, Drinking drivers; Driver intoxication; Safety campaigns; Police; Legislation; North Carolina*; Courts; Law enforcement*

HS-005 164 Fld. 3/1; 4/1

LANDMARK COURT DECISION ON RELIABILITY OF BREATH TESTS

by Robert L. Donigan; Edward C. Fisher

Published in *Traffic Digest and Review* v12 n6 p8-9, 27 (Jun 1964)

Discusses a case in which the New Jersey Supreme Court upheld a conviction for drunk driving based entirely on a blood alcohol test without other proof of erratic driving. Decision of the court on the reliability of such tests is excerpted. Various testing devices for breath and blood analysis are acceptable as evidence.

Search terms: Blood alcohol levels*; Drinking drivers; Driver intoxication; Legal factors; Courts; Evidence*; Blood analysis*; Breath analysis*; New Jersey*; Test equipment

4/1 Codes & Laws (Cont.)

HS-005 446 Fld. 4/1; 4/6

FAILURE TO REMOVE IGNITION KEY—THE KEY TO LIABILITY

by Larry M. Von Wald

Published in *South Dakota Law Review* v14 n1 p115-28 (Win 1969)

The question of whether the owner of a motor vehicle is to be held liable for the damaging or injurious acts of a thief where the key has been left in the ignition is explored.

Search terms: Theft; Stolen cars; Accident responsibility; Legal responsibility*; Negligence*; Ignition systems

HS-005 497 Fld. 4/1

MISSOURI DRAFTS TRAFFIC LEGISLATION

by Warren E. Hearnes

Published in *Traffic Safety* v69 n5 p20-1, 35 (May 1969)

Article by the governor of Missouri outlines 14 proposals for traffic safety and a legislative program based on them

Search terms: Traffic safety programs; Legislation; Missouri*; Traffic laws

HS-005 588 Fld. 4/1

SCHD STRIVING TO IMPLEMENT TRAFFIC SAFETY PROGRAM ACT

Anonymous

Published in *Carolina Highways* v22 n10 p16-7, 47 (Oct 1968)

Describes programs of the South Carolina Highway Department covering motor vehicle inspection, traffic control devices, design and maintenance of roads, and similar areas. Discusses the degree of South Carolina's compliance to the standards of the National Highway Safety Act.

Search terms: National Highway Safety Act of 1966*; Highway safety; Motor vehicle inspection; Traffic control devices; Highway design; Highway maintenance; State

government; South Carolina*; Compliance procedures

HS-005 597 Fld. 5/6; 4/1

CALIFORNIA AIR POLLUTION CONTROLS IN TRANSITION

by Eric P. Grant

Published in *Quarterly Journal of the California Driver Education Association* v15 n2 p8, 26 (Jan 1968)

Describes the successful efforts already made by California to control hydrocarbons from crankcase emissions, and the efforts being made to solve the exhaust emission problem from its ten million motor vehicles.

Search terms: Hydrocarbons; Crankcase emissions; Exhaust emissions; Air pollution control; California*; Air pollution laws; Motor vehicle laws; Carbon monoxide

HS-005 649 Fld. 4/1

RECENT CASES INDICATE COURTS' AWARENESS OF TRAFFIC PROBLEM. [PART I]

by Robert L. Donigan; Edward C. Fisher

Published in *Traffic Digest and Review* v15 n1 p18-24 (Jan 1967)

Appellate court decisions indicate a growing recognition of the seriousness of the traffic situation and a stiffening attitude toward traffic violators. Cases are discussed involving radar speed detection, right of way, driving while intoxicated as evidence of gross negligence, driving with defective brakes.

Search terms: Traffic law enforcement; Traffic violations; Traffic courts; Radar; Right-of-way (traffic rules)*; Drinking drivers; Driver intoxication; Defective vehicles; Motor vehicle brakes; Negligence*; Evidence*; Legal factors; Brake failures*; Traffic laws

HS-005 650 Fld. 4/1

RECENT CASES INDICATE COURTS' AWARENESS OF TRAFFIC PROBLEM. PART II

by Edward C. Fisher

Published in *Traffic Digest and Review* v15 n2 p19-22 (Feb 1967)

The recent tendency is toward holding motorists to strict accountability for traffic law violations. Cases are discussed involving the taking of a blood specimen from an unconscious motorist prior to arrest, which was upheld; driving on left-hand side of the road, in which no defense was accepted.

Search terms: Traffic law enforcement; Blood analysis*; Legal factors; Reckless driving; Careless driving; Traffic courts; Traffic laws

HS-005 651 Fld. 4/1

THE FINE LINES IN TRAFFIC VIOLENCE

by James P. Economos

Published in *Texas Medicine* v61 n11 p781-3 (Nov 1965)

Discusses the legal aspects of traffic and accident problems: whether driver's license is a right or a privilege, the desirability of the Uniform Vehicle Code to provide standard driving rules, the administration of implied consent laws to test blood alcohol of suspected drunk drivers, the denial of a license to persons thought unfit to drive, and the "Good Samaritan" laws to prevent physicians from being sued when they give first aid at accident sites.

Search terms: Physicians*; Implied consent laws*; Drinking drivers; Blood alcohol levels*; Driver license standards; Driver physical fitness; Legal factors; Legal rights; Traffic laws; First aid; Accident factors; Traffic safety; Uniform Vehicle Code*

HS-810 084 Fld. 2/0; 4/1

CREATING TOMORROW'S HIGHWAY SAFETY HERITAGE

by Lawrence A. Pavlinski

National Highway Safety Bureau, Washington, D.C. Highway Safety Programs Service

Published in *Public Administration Review* p553-5 (Nov-Dec 1968)

Presented at the Traffic Court Conference, March 6-7, 1968, Eau Claire and New London, Wisconsin

Outlines the highway safety problem and its history. Explains the objec-

4/1 Codes & Laws (Cont.)

HS-810-084 (Cont.)

tives of highway safety programs and how they are to be financed and administered. Comments on importance of driver education programs and lists the 13 areas in which performance standards have been issued under the Highway Safety Act of 1966.

Search terms: Highway safety; Safety programs; Driver education; Performance standards; Administrative procedures; Costs*; Highway Safety Act of 1966*

HS-005 681 Fld. 3/1; 4/1

THE DRINKING DRIVER: AN APPROACH TO SOLVING A PROBLEM OF UNDERESTIMATED SEVERITY

by David A. Scholl

Published in *Villanova Law Review* v14 n1 p97-115 (Fall 1968) 147 refs

Improvement of the statutes prohibiting driving while intoxicated is recommended. Adoption of implied consent laws is a necessity. Reducing the alcohol level above which a driver is presumed to be intoxicated and providing stricter, more consistent penalties also are necessary for more appropriate statutes. That police institute periodic road blocks is suggested. Henry Ford's foresight regarding the dire effects of removing prohibition in the wake of increase in auto ownership is mentioned. American and European laws and their enforcement are contrasted.

Search terms: Implied consent laws*; Driver intoxication; Blood alcohol levels*; Legislation; Prohibition*; Drinking drivers; Breath analysis*; Urinalysis*; United States*; Europe*; Alcoholism; Reviews*; Constitutional law*; Law enforcement*

HS-005 682 Fld. 3/1; 4/1

DRIVING WHILE INTOXICATED—IMPLIED CONSENT STATUTE IN OHIO

by Terence J. Clark

Published in *Case Western Reserve Law Review* v20 n1 p277-95 (Nov 1968) 68 refs

Under Ohio's implied consent statute, a driver who refuses a chemical test for intoxication may have his driver's license revoked. If a blood alcohol level of 0.15% or more is determined, the driver is subject to criminal penalty. Constitutional questions and reasonable grounds for arrest are discussed.

Search terms: Ohio*; Implied consent laws*; Blood alcohol levels*; Driver license revocation; Self incrimination*; Drinking drivers; Driver intoxication; Reviews*; Blood analysis*; Constitutional law*; Chemical analysis; Law enforcement*

HS-005 762 Fld. 4/1

RECENT TRAFFIC CASES OF INTEREST. PART II

by Edward C. Fisher

Published in *Traffic Digest and Review* v15 n5 p17-22 (May 1967)

Among the legal factors discussed are: vicarious liability for motor vehicle homicide, in which persons other than the driver are held responsible; the individual criminal liability of race participants; the principle of res judicata in traffic cases; the principles of double jeopardy; former jeopardy, and continuing offenses.

Search terms: Homicide*; Legal factors; Traffic courts; Legal responsibility*; Reckless driving; High speed; Traffic laws; Liability*

HS-005 799 Fld 3/6; 4/1

DRIVER LICENSING AND THE LAW. PART 1

by Robert L. Donigan; Edward C. Fisher

Published in *Traffic Digest and Review* v13 n7 p20-4 (Jul 1965) 51 refs

The control of drivers through licensing procedures, the authority of states to require drivers to have licenses, and the exercise of states' police power are discussed. The purpose of driver licensing has come to include the promotion of highway safety by insuring a minimum level of driver competence. The administration of state driver licensing,

agencies is outlined.

Search terms: Driver license laws; Driver licensing; State government; Police; Legal factors; Highway safety; Driver skills; Driver license standards; Administrative procedures

HS-005 800 Fld. 3/6; 4/1

DRIVER LICENSING AND THE LAW. PART 2

by Robert L. Donigan; Edward C. Fisher

Published in *Traffic Digest and Review* v13 n8 p20-4 (Aug 1965) 38 refs

The legal nature of a driver's license is discussed, especially the issue of license as a right versus license as a privilege. Various court decisions of this issue are outlined. The conditions under which license may be issued and the qualifications the applicant must meet are discussed.

Search terms: Driver license laws; Driver licensing; Legal factors; Driver license standards; Legal rights; Courts

HS-005 801 Fld. 3/6; 4/1

DRIVING LICENSING AND THE LAW. PART 3

by Robert L. Donigan; Edward C. Fisher

Published in *Traffic Digest and Review* v13 n9 p18-24 (Sep 1965) 49 refs

Age qualifications for the issuance of a driver's license and statutes requiring parents to assume financial responsibility for minors are discussed. The driver licenses examination and grounds under which license may be denied, including epilepsy, are outlined. Rules for the issuance of chauffeurs' licenses, duplicate licenses to replace lost or stolen ones, and limited licenses are discussed.

Search terms: Driver license laws; Driver licensing; Legal factors; Driver license standards; Driver license denial; Age factor in driving; Financial responsibility; Driver license examination; Epilepsy*;

4/1 Codes & Laws (Cont.)

HS-005-801 (Cont.)

Driver physical fitness; Driver restrictions; Professional drivers; Uniform vehicle code*

HS-005 802 Fld. 3/6; 4/1

DRIVER LICENSING AND THE LAW: PART 4

by Robert L. Donigan; Edward C. Fisher

Published in *Traffic Digest and Review* v13 n10 p14-25 (Oct 1965) 110 refs

The driving privileges of out-of-state drivers are discussed. The conditions under which drivers' licenses may be suspended or revoked, conditions requiring mandatory revocation, conditions allowing discretionary suspension by administrative agencies are outlined. License may not be suspended or revoked arbitrarily; licensee must be accorded due process of law, some states requiring a notice and a hearing.

Search terms: Driver license laws; Driver licensing; Legal factors; Legal rights; Out-of-state drivers; Driver license suspension; Driver license revocation; Administrative procedures

HS-005 803 Fld. 3/6; 4/1

DRIVER LICENSING AND THE LAW. PART 5

by Robert L. Donigan; Edward C. Fisher

Published in *Traffic Digest and Review* v13 n11 p15-22 (Nov 1965) 75 refs

Driver license suspensions for frequent conviction of serious offenses, habitual reckless or negligent driving, and gross negligence are discussed. The laws of various states on these points are compared. Revocation and suspension of license for out-of-state convictions and the Interstate Driver License Compact are discussed.

Search terms: Driver license laws; Driver licensing; Legal factors; State laws; Driver license suspension; Driver license revocation; Reckless driving; Careless driving;

Negligence*; Out-of-state drivers; State government; Convictions; Interstate compacts

HS-005 804 Fld. 3/6; 4/1

DRIVER LICENSING AND THE LAW. PART 6

by Robert L. Donigan; Edward C. Fisher

Published in *Traffic Digest and Review* v13 n12 p16-24 (Dec 1965) 95 refs

The issuance of "hardship" or "occupational" permits to persons whose licenses have been revoked is discussed. Restoration of license after revocation or suspension, the operation of point systems, administrative action under the implied consent laws, driver license renewal and re-examination, and court review of administrative actions are outlined.

Search terms: Driver license laws; Driver licensing; Legal factors; Driver license revocation; Driver license suspension; Driver restrictions; Driver license renewal; Driver license examination; Courts; Administrative procedures; Point systems; Implied consent laws*; Drinking drivers; Blood alcohol levels*; Driver intoxication; Legal rights

HS-005 872 Fld. 3/6; 4/1

DRIVER LICENSING AND THE COURT

by James P. Economos

Published in *Traffic Digest and Review* v17 n7 p3-6, 24 (Jul 1969)

Courts and driver licensing authorities should cooperate to create an environment in which drivers obey traffic laws voluntarily. The Uniform Vehicle Code requires courts to report convictions for traffic violations to the driver licensing agency. Problems in administering this requirement are outlined. The responsibility of traffic courts for driver improvement is discussed. Appeal procedure from driver license actions is included.

Search terms: Traffic courts; Driver licensing; Driver improvement; Driver license suspension;

Driver license revocation; Convictions; Traffic laws; Traffic violations; Legal factors; Uniform Vehicle Code*; Driver records; Interstate compacts

HS-005 879 Fld. 4/8; 4/1

A REALISTIC APPROACH TO PROBLEMS OF MOTOR VEHICLE AND HIGHWAY USE

by Louis R. Morony

Published in *Traffic Quarterly* v15 n2 p248-68 (Apr 1961)

The highway, the motor vehicle, and the driver must be studied together in dealing with highway transportation as a whole. Two closely-related aspects discussed in this paper are: the planning and building of adequate highway facilities and the efficient operation of highways for the highest potential of service. This second aspect includes matters concerning the vehicle and the driver. The concern of Congress over highway safety and policy, the role of state governments, and the need for thorough study of the problems are discussed. Gathering and evaluation procedures for data are outlined.

Search terms: Highway administration; Highway planning; Highway research; Highway safety; Highway usage; State government; United States Government; Data acquisition; Transportation planning; Driver-vehicle interface; Motor vehicle use studies; Legislation

HS-005 900 Fld. 3/1; 4/1

ALCOHOL AND THE IMPAIRED DRIVER: A MANUAL ON THE MEDICOLEGAL ASPECTS OF CHEMICAL TESTS FOR INTOXICATION

by Russell S. Fisher; Charles H. Hine; C. Joseph Stetler; John K. Torrens; Carl E. E. Wasmuth, Herman Wing; Richard P. Bergen
American Medical Assoc., Chicago, Ill.

243p 229 refs

A Model Program for the Control of Alcohol for Traffic Safety developed by the National Safety Council for the National Highway Safety Bureau is appended.

4/1 Codes & Laws (Cont.)

HS-005-900 (Cont.)

The impairment of a driver by alcohol is discussed in terms of pharmacology and neurophysiology. Road tests and simulated driving tests have led to the conclusion that driving skill deteriorates with a relatively low blood alcohol level, certainly less than 0.05%. Chemical test methods, and their legal aspects are presented. Committee members preparing this report included attorneys as well as physicians.

Search terms: Traffic safety programs; Alcoholic beverages; Drinking drivers; Handicapped drivers; Blood alcohol levels*; Pharmacology*; Synergism*; Drugs*; Nervous system; Human behavior; Driver intoxication; Driving simulation; Court decisions*; Driver performance tests; Road tests; Chemical analysis; Urinalysis*; Breath analysis; Legislation; Driver license laws; Legal factors; Evidence*; Uniform Vehicle Code*; Constitutional law*; Self incrimination*; Implied consent laws*; Federal-state relationships*; Multidiscipline teams*

AVAILABILITY: Corporate author

HS-005 932 Fld. 5/0; 4/1

THE NEED FOR UNIFORM INTERNATIONAL SAFETY STANDARDS

by Robert E. Woolcott; Timothy A. Hunter

General Motors of Canada Ltd., Oshawa, Ont. (Canada)

6p

Growing concern for highway safety is world-wide. Some of the activity in this field throughout the world is discussed, including the effects of proliferation and the confusion created for the driver. Some considerations for construction of international standards are defined. Present safety standards of various countries are outlined.

Search terms: Highway safety; Safety standards; Safety programs; International aspects*

AVAILABILITY: Paper 29 in General Motors Proving Ground,

PROC. OF AUTOMOTIVE SAFETY SEMINAR, 11-12 Jul 1968 (HS-005 901)

HS-820 042 Fld. 4/1

HIGHWAY SAFETY PROGRAM MANUAL. VOLUME 6. CODES AND LAWS

National Highway Safety Bureau, Washington, D.C.

Jan 1969 25p 5 refs

One of 17 volumes, two of which (vols. 12 and 13) are as yet unissued (see HS-820 036 to HS-820 050).

The complete manual supplements the Highway Safety Program Standards and presents additional information to assist State and local agencies to implement their highway safety programs. This volume provides guidelines for achieving uniform traffic regulation throughout the nation.

Search terms: Highway safety; Safety programs; State government; Local government*; Uniform Vehicle Code*; Model Traffic Ordnance*; Traffic laws

AVAILABILITY: Federal Highway Administration, Washington, D.C. 20591, Attn: Records Management Branch. \$1.10

HS-006 017 Fld. 3/1; 4/1

DRUNKEN DRIVERS AND WILLING PASSENGERS

by D. M. Gordon

Published in *Law Quarterly Review* v82 n325 p62-80 (Jan 1966)

Differences of views between Australian, Canadian, and English courts are covered in cases regarding decisions of negligence in trials of intoxicated drivers who have gratuitous passengers.

Search terms: Courts; Australia*; Canada*; Great Britain*; Drinking drivers; Passengers; Hazards; Law (jurisprudence); Negligence*; Legal responsibility*; Legal factors; Risk taking*; Alcoholism; Court decisions*; Driver intoxication

HS-006 034 Fld. 3/11; 2/9; 4/1 PEDESTRIAN RESPONSE TO RED LIGHTS

National Committee on Uniform Traffic Laws and Ordinances, Washington, D.C.

Published in *Traffic Laws Commentary* n69-3 p1-13 (3 Sep 1969)

Contract FH-11-6869

The pro's and con's of allowing pedestrians to start crossing when facing a red light are discussed. There is a conflict on this between the Uniform Vehicle Code and the Manual on Uniform Traffic Control Devices for Streets and Highways. Variations in state laws are discussed.

Search terms: Pedestrian behavior; Pedestrian safety; Uniform Vehicle Code*; Manual on Uniform Traffic Control Devices for Streets and Highways*; State laws; Law uniformity; Traffic signals; Traffic control; Signal color; Intersections

HS-006 035 Fld. 4/1; 5/14

SEAT BELT NEGLIGENCE IN AUTOMOBILE ACCIDENTS

by John W. Roethe

Published in *Wisconsin Law Review* v1967 n1 p288-300 (Winter 1967)

This article focuses on the problem of whether the failure to use an available seat belt constitutes contributory negligence. The question was discussed by examining the problem under a possible statutory standard of care as well as from the common-law standard of ordinary care. In conclusion failure to use a seat belt may be held to be contributory negligence. However, factual causation problems must be overcome before such a holding can be made. More important, the social utility of the seat belt as a safety device must be accepted by the public.

Search terms: Wisconsin*; Law (jurisprudence); Seat belt usage*; Negligence; Legal factors; Seat belts; Court decisions*; Injuries; Public opinion

4/1 Codes & Laws (Cont.)

HS-006 104 Fld. 2/0; 4/1

REPORT OF THE LEGISLATIVE RESEARCH COUNCIL RELATIVE TO MASSACHUSETTS IMPLEMENTATION OF THE NATIONAL HIGHWAY SAFETY ACT OF 1966

by Robert D. Webb

Massachusetts. Legislature, Boston
30 Jan 1968 77p
Report no. Senate-980

The provisions of the Highway Safety Act of 1966 are outlined and the extent to which Massachusetts has complied are detailed. The problems of financing compliance are discussed. Included are efforts to meet standards in driver education, licensing, motorcycle safety, traffic records, motor vehicle inspection and registration, highway design, traffic control devices, accident location identification, codes and laws, traffic courts, emergency medical services, implied consent laws and blood alcohol tests, and drugs.

Search terms: Highway Safety Act of 1966*; Compliance procedures; Driver education; Driver licensing; Motorcycle safety; Traffic records; Motor vehicle inspection; Motor vehicle registration; Highway design; Traffic control devices; Accident location; Traffic laws; Traffic courts; Emergency medical services; Implied consent laws*; Blood alcohol levels*; Drugs; Massachusetts*

AVAILABILITY: Corporate author

HS-006 116 Fld. 3/1; 4/1

IMPLIED CONSENT TO A CHEMICAL TEST FOR INTOXICATION: DOUBTS ABOUT SECTION 6-205 OF THE UNIFORM VEHICLE CODE

Anonymous

Published in *University of Chicago Law Review* v31 p603-11 (Spr 1964) 59 refs

Among the legal difficulties discussed are: whether test should be given to an unconscious person, whether refusal to take test is evidence of guilt, whether tests constitute self

incrimination, whether tests violate constitutional rights. Various court decisions dealing with these matters are outlined.

Search terms: Uniform Vehicle Code*; Implied consent laws*; Chemical analysis; Blood analysis; Drinking drivers; Self incrimination; Constitutional law*; Legal rights; Evidence*; Driver intoxication; Court decisions*

HS-006 122 Fld. 3/6; 4/1

DRIVER RE-EXAMINATION LAWS

Anonymous

National Committee on Uniform Traffic Laws and Ordinances, Washington, D.C.

Published in *Traffic Laws Commentary* n69-1 pl-26 (20 Jun 1969) 133 refs

Contract FH-11-6869

While all states require examination before issuance of a driver's license, the adoption of periodic re-examination would be a development of great magnitude in highway safety, involving the entire driving population of more than 100,000,000 people. State laws that form the basis for such a program are reviewed, together with pertinent provisions of the Uniform Vehicle Code. Circumstances under which drivers are now required to be re-examined are outlined.

Search terms: Driver license examination; Driver license standards; State laws; Uniform Vehicle Code*; Driver physical fitness; Driver license revocation; Driver license renewal; Driver license suspension

HS-006 126 Fld. 4/1; 4/6

NEGLIGENCE PER SE--TRAFFIC VIOLATIONS

by J. Max Shelton

Published in *Tennessee Law Review* v30 p556-68 (Sum 1963) 38 refs

The trend is to be more flexible in applying rules on the effect of criminal violations in determining proper standards of conduct in negligence cases. Various court decisions dealing with contributory negligence and legal liability are discussed.

Search terms: Negligence*; Evidence*; Traffic violations; Liability*; Court decisions*; Traffic violations

HS-006 197 Fld. 4/1; 4/6

IMPUTED CONTRIBUTORY NEGLIGENCE: THE ANOMALY IN CALIFORNIA VEHICLE CODE SECTION 17150

by Jack H. Friedenthal

Published in *Stanford Law Review* v17 p55-76 (Nov 1964) 78 refs

Editor's note: Section 17150 was repealed in 1967.

The doctrine of imputed contributory negligence has recently been subjected to sharp attack both by courts and legal commentators throughout the country. A 1937 amendment to the California Vehicle Code (Section 17150) makes the vehicle owner responsible for the negligence of a person driving the owner's car with the latter's express or implied permission. This study analyzes the arguments that the imputation clause should be changed or eliminated. California's position has been adopted by only a small minority of courts.

Search terms: Negligence*; Accident responsibility; Financial responsibility; California*; Court decisions*; Legal responsibility*; Motor vehicle ownership; Loaned vehicles*

HS-006 309 Fld. 4/1

LET'S BE REALISTIC ABOUT SPEED LIMITS

by Edwin L. Kirby

Published in *Traffic Safety* v62 n6 p8-10, 36-7 (Jun 1963)

The dangers of varying and unrealistic speed limits are summarized. Speed provisions of the Uniform Vehicle Code and speed limits on the interstate highways are discussed. A speed control program should be based on national standards, as much uniformity as possible, and realistic limits.

Search terms: Speed limits; Traffic laws; High speed; Interstate highway system; Uniform Vehicle Code; Standardization; Traffic law enforcement

4/1 Codes and Laws (Cont.)

HS-006 356 Fld. 3/6; 4/1

RECOMMENDATIONS AND SUGGESTED CHANGES IN THE ILLINOIS DRIVERS LICENSE LAW. FINAL REPORT

Illinois. Citizens Advisory Committee on Drivers Licensing, Springfield (1968) 23p

An Illinois Citizens Advisory Committee on Drivers Licensing recommended deletions and additions for the Drivers License Act, Chapter 6 and 6A of the Illinois Laws Relating to Motor Vehicles, 1967. These changes assure conformity with the Uniform Vehicle Code and the national highway safety standards. Recommendations are summarized.

Search terms: Driver license laws; Driver licensing; Uniform Vehicle Code; Community support; Illinois; Safety standards; Driver education; Driver license revocation; Driver license examination; Medical advisory boards; Driver physical fitness; Implied consent laws

AVAILABILITY: Corporate author

HS-006 392 Fld. 3/1; 4/1

MANSLAUGHTER: AUTOMOBILE OWNER WHO PERMITTED INTOXICATED PERSON TO DRIVE NOT RESPONSIBLE FOR FATAL COLLISION

Anonymous

Published in *Minnesota Law Review* v46 p414-20 (Dec 1961) 32 refs

A Michigan case is discussed in which the auto owner was convicted of involuntary manslaughter as well as the misdemeanor of permitting an intoxicated person to drive his car. The drunk driver suffered a head-on collision with another car, killing both drivers. The owner was not in the car. The Michigan Supreme Court reversed the conviction for manslaughter but allowed the misdemeanor conviction to stand. It is argued that allowing a drunk to drive should be grounds for manslaughter conviction of the owner as well as the drunken driver.

Search terms: Court decisions; Michigan; Driver intoxication;

Drinking drivers; Head on collisions; Fatalities; Convictions; Manslaughter; Loaned vehicles

HS-006 404 Fld. 4/1

RIGHT TO COUNSEL IN TRAFFIC CASES—RECENT DECISIONS. PART I

by Lester A. Bonaguro

Published in *Traffic Digest and Review* v16 n10 p15-23 (Oct 1968)

Significant federal and state court decisions affecting the right of an indigent person to counsel in traffic cases and other misdemeanors are covered. Discusses the need for the U.S. Supreme Court to rule whether the Sixth Amendment right to counsel or the Fourteenth Amendment due process clause requires appointment of counsel in such cases. Decisions illustrating ways in which various states have resolved the right to counsel dilemma are outlined. Lack of uniformity in decisions is noticeable; however the conclusions reached by various courts are that the right to counsel falls into five general categories: (1) all misdemeanors; (2) where incarceration is a possible result; (3) the seriousness of the offense or penalty; (4) appointment of counsel is within the discretion of the trial judge; and (5) does not extend to misdemeanors.

Search terms: Supreme Court; Court decisions; Law uniformity; Legal rights; Law (jurisprudence); Traffic laws; State laws

HS-006 405 Fld. 4/1

RIGHT TO COUNSEL IN TRAFFIC CASES—RECENT DECISIONS. PART 2.

by Lester A. Bonaguro

Published in *Traffic Digest and Review* v16 n11 p19-24 (Nov 1968)

Additional cases covering the right to counsel dilemma are presented. Some courts hold that this right extends to misdemeanors but does not include traffic cases. Differences of opinion will continue until a U.S. Supreme Court decision is reached. Indications are that this decision will extend right to court appointed counsel to all proceedings where loss of liberty may result.

Search terms: Supreme Court; Court decisions; Law uniformity; Legal rights; Law (jurisprudence); Traffic laws; State laws

HS-800 169 Fld. 3/11; 4/1; 1/3

PEDESTRIAN REGULATION ENFORCEMENT AND THE INCIDENCE OF PEDESTRIAN ACCIDENTS

by Sidney Singer

Dunlap and Associates, Inc., Darien, Conn.

Aug 1969 91p 71 refs
Contract FH-11-6968; PB-187 519
Report no. D/A-SSD-69-726

Pedestrian protection ordinances, their enforcement, and the effectiveness of enforcement in reducing pedestrian accidents were investigated. A literature search revealed a large body of popular material but a lack of scientifically valid information. Analysis of existing data showed no statistically significant relationship between the degree of enforcement activity and pedestrian casualties in urban areas. The data base however, was considered inadequate to make a valid study. The field experiment, conducted in Fort Worth, Sacramento, and Seattle, was divided into three phases: before, during, and after the introduction of a two-week period of increased enforcement. No conclusive results were produced. It was observed that in most states, pedestrian-related regulations conformed substantially with the Uniform Vehicle Code. The report recommends development of better quantitative measures than issuance of citations to indicate the effectiveness of pedestrian regulation enforcement, and consistent nation-wide collection of data on this subject.

Search terms: Pedestrian accidents; Pedestrian behavior; Pedestrian safety; Law enforcement; Regulations; Statistical analysis; Fort Worth; Sacramento; Seattle; State laws; Uniform Vehicle Code; Urban areas; Traffic signals; Reviews; Violations; Safety campaigns; Accident rates; Variance analysis; Intersections; Jaywalking

AVAILABILITY: CFSTI as PB-187 519

4/1 Codes and Laws (Cont.)

HS-820 061 Fld. 4/1; 2/8

**HIGHWAY SAFETY PROGRAM
PRIORITIES SEMINAR,
FREDERICKSBURG, VIRGINIA,
JULY 18-20, 1969. PROCEEDINGS,
VOL. 7: ENFORCEMENT**

National Highway Safety Bureau,
Washington, D.C.

1969 51p
Report no. PB-186 274

Traffic codes and laws are ineffective and meaningless without enforcement. The highway transportation system, and the driver in particular, require regulation and continuous control. Enforcement is thus concerned with human behavior within the confines of the highway system. While driver licensing and public health departments, courts, and safety groups conduct activities to regulate driver behavior, the police have the primary responsibility to make the system function. Police responsibility includes traffic law enforcement, accident management and investigation, and traffic direction and control. Costs and benefits for better traffic law enforcement are discussed. The Connecticut speed crackdown campaign results are included.

Search terms: Benefit cost analysis; Police traffic services; Driver licensing; Traffic courts; Driver behavior; Traffic law enforcement; Accident investigation; Traffic control; Safety campaigns; Speed studies; Connecticut; Traffic laws

AVAILABILITY: CFSTI as PB-186
274

HS-820 062 Fld. 5/12; 4/1

**HIGHWAY SAFETY PROGRAM
PRIORITIES SEMINAR,
FREDERICKSBURG, VIRGINIA,
JULY 18-20, 1969. PROCEEDINGS,
VOL. 8: COMPLIANCE**

National Highway Safety Bureau,
Washington, D.C.

1969 35p
Report no. PB-186 275

Compliance enforcement is essential to a regulatory agency. The resources available to the National Highway

Safety Bureau preclude compliance testing, even on a sample basis, of some 500 models of new cars. There are thousands of truck manufacturers, tire makers and retreaders, and a large market of replacement parts, new and used. Testing must be on a basis of trouble indications, criticality of standards involved, and special attention to examination of manufacturers' certification data and quality control procedures and practices. Greater emphasis on the compliance program is recommended.

Search terms: Safety standards; National Highway Safety Bureau; Compliance procedures; Quality control; Automotive industry; Automobile models; Trucks; Retreads; Tires; Used parts dealers; tests; Law enforcement

AVAILABILITY: CFSTI as PB-186
275

HS-006 471 Fld. 4/1; 5/21

**CALIFORNIA'S ABANDONED
VEHICLE LAW**

by Joe Creisler

Published in *Public Works* v100 n10
p103-7 (Oct 1969)

A critique of California's law regarding abandoned vehicles is presented. Covered are facts involving the manner in which a disabled vehicle is confiscated; a comparison with previous laws, rules and regulations; a review of its acceptance or rejection by the counties of the State; and recommendations which might better strengthen the intent of the law.

Search terms: California; Legislation; Disabled vehicles; Debris removal; Local government; Abandoned vehicles

HS-006 521 Fld. 4/1; 3/3; 5/3

**CONSTITUTIONALITY OF
MANDATORY MOTORCYCLE
HELMET LEGISLATION**

by Bruce I. Kogan

Published in *Dickinson Law Review*
v73 n1 p100-14 (Fall 1968) 90 refs

Traditional limits of police power allow the state to regulate only conduct which adversely affects others. Since failure to wear a motorcycle helmet affects only the individual

motorcyclist, it is submitted that police powers cannot validly be invoked to enforce wearing helmets. It is suggested that attempts to enforce helmet wearing are unconstitutional. Motorcyclist protection could be accomplished by requiring the manufacturer to include with the motorcycle helmets for the rider and a passenger as seat belts are required in cars. This method would not infringe individual liberty and would provide a helmet, though it could not guarantee the wearing of the helmet.

Search terms: Helmets; Motorcycle safety; Motorcycle accidents; Head injuries; Constitutional law; Legal factors; Court decisions; State laws

HS-006 522 Fld. 4/1; 4/7

**ANALYSIS OF DATA ON THE
CONNECTICUT SPEEDING CRACK-
DOWN AS A TIME-SERIES QUASI-
EXPERIMENT**

by Gene V. Glass

Published in *Law and Society Review*
v3 n1 p55-76 (Aug 1968)

In 1955, Connecticut initiated a policy of driver license suspension for speeding in an attempt to reduce accidents. Data on traffic fatalities before and after the speeding crackdown can be regarded as a time-series quasi-experiment with some significance for the social sciences. The Connecticut data are compared with data from four nearby states. Connecticut experienced a drop in fatalities while the other states did not. The inferential techniques applied in this paper are designed to assess the statistical stability of an alteration in the course of a time-series without analyzing the causes of such alterations. There appears to be statistically reliable evidence of an abrupt diminution of traffic fatalities in the month after the crackdown.

Search terms: Accident prevention; Connecticut; Traffic law enforcement; Speed limits; Fatalities; Accident rates; Statistical analysis; Time series analysis; Safety campaigns; Driver license suspension; High speed; Accident data

HS-006 523 Fld. 4/1; 1/1

**COMPENDIUM OF STATE
STATUTES ON THE REGULATION**

4/1 Codes and Laws (Cont.)

HS-006-523 (Cont.)

OF AMBULANCE SERVICES, OPERATION OF EMERGENCY VEHICLES AND GOOD SAMARITAN LAWS. REV. ED.

Public Health Service, Washington,
D.C.

Jun 1969 108p
Report no. PHS-Pub-1071-A-11

This compendium is intended for public health officials and groups concerned with improving the organization and delivery of emergency medical services. It details laws concerning emergency vehicles including ambulances and their equipment, first aid, ambulance crews and their qualifications, record keeping, inspection of vehicle and equipment, and registration. For Good Samaritan laws, year of enactment and kinds of coverage provided are detailed.

Search terms: Good Samaritan laws; First aid; Emergency medical services; Ambulances; Emergency vehicles; Emergency equipment; Motor vehicle inspection; Motor vehicle registration; Liability; Ambulance personnel; State laws; Ambulance laws

AVAILABILITY: GPO \$1.50

HS-006 524 Fld. 4/1; 1/1

A MODEL ORDINANCE REGULATING AMBULANCE SERVICE

Joint Action Program, Chicago, Ill.
Aug 1966 23p

Reproduced with permission by
Public Health Service, Washington,
D.C.

This ordinance, which can also serve as a model state law, covers ambulance licensing, licensing standards, liability insurance, duties of license and health officers, standards for ambulance equipment, standards for drivers and attendants, renewal and revocation of license, requirements for filing of reports, traffic laws for ambulances, penalties for non-compliance.

Search terms: State laws;
Ambulances; Ambulance personnel;
Local government; Licensing; Traf-

fic laws; Penalties; Emergency equipment; Emergency medical services; Liability insurance; Public health; Driver license standards; Standards; Model ambulance ordinances; Ambulance licensing

AVAILABILITY: Information
Clearing House, Public Health Service,
6935 Wisconsin Ave., Chevy Chase,
Md. 20015

HS-006 583 Fld. 4/1; 1/1; 2/3

HIGHWAY TRANSPORTATION OF EXTRA-HAZARDOUS COM- MODITIES: SUGGESTED GUIDE FOR STATE ACTION ON SAFETY FROM FIRE, EXPLOSION AND HEALTH HAZARDS

American Insurance Assoc., New
York

1966 24p 21 refs

This guide is designed to promote valid and uniform highway safety controls; to minimize the hazards accompanying the transportation of certain dangerous materials; and to safeguard the public and communities along the nation's traffic arteries against the possibility of a major disaster resulting from fire, explosion, and accidental release of toxic or poisonous substances. The guide is presented for state enactment of a "Transportation of Extra-hazardous Commodities Act."

Search terms: State government;
Fires; Disasters; Safety laws;
Hazardous materials; Highway
transportation; Regulations; Motor
vehicle inspection; Safety measures;
Health hazards; Motor carriers;
Cargo transportation

AVAILABILITY: Corporate author

HS-006 584 Fld. 4/1

DO SPEED LIMITS WORK?

by J. J. Leeming

Published in *Motor* v136 n3509
p21-5 (17 Sep 1969)

The evidence in favor of speed limits as now imposed in Great Britain and the United States is doubtful, and if they do reduce accidents the result is marginal. It is even possible that they increase fatalities. They are open to grave objection on social grounds as bringing the law into contempt, being unenforceable, and embittering the

relations between the public and the police. Absolute limits should be abolished completely. Advisory limits could be used instead, set at the speed not exceeded by 85% of the traffic.

Search terms: Speed limits; Traffic
law enforcement; Community
support; Accident prevention;
Fatalities; Police; Great Britain;
United States; Accident rates

HS-006 697 Fld. 4/1

A NOVEL APPROACH TO SPEEDING

by Roy G. Poulsen

Published in *Traffic Safety* v69 n11
p24-5 (Nov 1969)

A steeply graduated tax on fast cars is proposed to counter the public's tendency to purchase cars whose speed capability is their major selling point. It is suggested that a 20% reduction in speed would save at least 25,000 lives a year. A differential fine system for speeding and other traffic offenses is also proposed to provide real economic deterrents to bad driving.

Search terms: Traffic violations;
High speed; Unsafe speed; Accident
prevention; Fatalities; Safety programs;
Fines (penalties); Taxes;
Economic factors; Driver behavior;
Consumer preferences

4/2 COMMUNITY SUPPORT

HS-004 380 Fld. 1/3,4/2

PHYSICIANS' RESPONSIBILITY IN PREVENTION OF BODILY INJURIES BY THE AUTOMOBILE
by Seymour Charles, John States

Published in Journal of the American Medical Association v197 n1 p107-12 (4 Jul 1966)

Safety campaigns have failed to prevent auto accidents, which have become an epidemic. The medical profession should provide initiative for expanded public education, accident investigation, and research.

Federal and state governments should regulate the automobile industry.

Search terms: Physicians, Injury prevention, Accident prevention, Automobile accidents, Accident research, Seat belts, Ejection, Passenger packaging, Standards, Safety standards, Community support, Safety campaigns, Automotive industry, State government, Federal control

HS-004 387 Fld 4/2

SEX
by William K. Leller

Published in Journal of Kentucky Medical Association v65 p879-80 (Sep 1967)

Editorial discusses the role physicians can play in automotive safety; includes setting an example by good driving habits and supporting better law enforcement, highway improvement, driver education, seat belt usage, improved driver licensing practices. Article's title is meant only to attract attention.

Search terms: Driver education, Driver license standards, Driver perform-

ance, Driving, Highway safety, Highway standards, Law (jurisprudence), Physicians, Safety campaigns, Seat belt usage

HS-810 013 Fld. 4/2

REMARKS. [HIGHWAY SAFETY: PRECRASH, CRASH, POSTCRASH] LEADERS FOR HIGHWAY SAFETY by William Haddon, Jr. National Highway Safety Bureau, Washington, D. C.

27 Nov 1967 10p
Presented at the National Conference of Women Community Leaders for Highway Safety, Washington, D. C.

American women in their traditional role of successful crusaders for legislation are encouraged to recognize the three phases, precrash, crash, postcrash-of highway safety and to organize for its promotion.

Search terms: Highway Safety, Crash phases, Community support, Females, Speeches

AVAILABILITY: From corporate author

HS-004 465 Fld. 1/1,4/2

EMERGENCY CARE AND TRANSPORT OF THE INJURED
by Roswell K. Brown

Published in Journal of Medical Association of Georgia v56 p467-73 (Nov 1967)

Reviews emergency care service from several aspects: ambulances, personnel, vehicle equipment, communications. Summarizes deficiencies in current services. Recommends an Emergency Care Council for each community and a Committee on Emergency Care for each medical society within an area to re-establish lines of cooperation.

Search terms: Care of injured, Community support, Emergency medical services, Ambulances, Injuries

HS-004 592 Fld. 4/2,5/0,3/0

DOCTORS AND HIGHWAY SAFETY
by George E. Shambaugh, Jr.

Published in Archives of Otolaryngology v80 n1 p126-7 (Jul 1964)

Doctors are urged to take the lead in promoting seven proposals to solve the highway safety problem: driver training courses, better driver license standards, the establishment of medical referral committees to screen out unfit drivers, the issuance of different classes of driver permits for private car, truck, and bus drivers, the control of drinking drivers, more severe penalties for speeding and reckless driving, and better auto design. This article is an editorial commanding proposals of Dr. Fletcher Woodward.

Search terms: Community support, Highway safety, Driver education, Driver physical fitness, Driver license standards, Driver licensing, Drinking drivers, Bus drivers, Truck drivers, Reckless driving, Unsafe speed, High speed, Motor vehicle design, Safety design, Penalties, Physicians*, Editorials*

HS-004 593 Fld. 4/2,5/0,3/0

SEVEN MEDICAL PROPOSALS TO PROMOTE HIGHWAY SAFETY
by Fletcher D. Woodward

Published in Virginia Medical Monthly v90 n12 p611-8 (Dec 1963)

Doctors are urged to take the lead in promoting seven proposals to solve the highway safety problem: driver training courses, better driver license standards, the establishment of medical referral committees to screen out unfit drivers, the issuance of different classes of driver permits for private

4/2 Community Support (Cont.)

HS-004-593 (Cont.)

car, truck, and bus drivers, the control of drinking drivers, more severe penalties for speeding and reckless driving, and better auto design.

Search terms: Community support, Highway safety, Driver education, Driver physical fitness, Driver license standards, Driver licensing, Drinking drivers, Bus drivers, Truck drivers, Reckless driving, Unsafe speed, High speed, Motor vehicle design, Safety design, Penalties, Physicians*

HS-004 635 Fld. 3/0,4/2

PHYSICIANS AND TRAFFIC SAFETY
Anonymous

Published in Canadian Medical Association Journal v90 p1422-3 (20 Jun 1964).

Urge physicians to play a role in traffic safety efforts by reporting to authorities patients who are unfit to drive, by cautioning patients about the effect of drugs on their driving ability, by advising patients on highway safety, by promoting driver training courses, and by setting an example of good driving and seat belt usage.

Search terms: Highway safety, Community support, Driver physical fitness, Driver education, Drugs, Seat belt usage*, Seat belts, Physicians*, Editorials*

HS-004 701 Fld. 4/2

8 STEPS TO PUBLIC SUPPORT
by A. R. Roalman

Published in Traffic Safety v69 n1 p18-9 (Jan 1969)

To win broad-scale improvements in traffic safety, apply these steps: use hard

facts, clearly written presentations, lay groundwork, go out and talk, get publicity for your speeches, get others to endorse your proposals, report successes, demonstrate honor.

Search terms: Safety campaigns, Public opinion, Public relations, Community support, Traffic safety programs

HS-004 702 Fld. 4/4,4/2

NEW HIGHWAY SAFETY PROGRAM ANALYSIS, NEW NATIONAL STANDARDS, BETTER ENGINEERING
by Fred Potenza

Published in Traffic Engineering v39 n4 p28-9, 32-3 (Jan 1969)

Introduces a new program (Highway Safety Program Analysis) launched by the National Safety Council to assist states, counties, cities in meeting national standards of the Highway Safety Act. The program will: identify program deficiencies and strengths, justify projects for funding, improve public relations, etc.

Search terms: Safety programs, Highway Safety Act of 1966*, National Safety Council*, State government, Federal aid, Local government*, Compliance procedures, Highway Safety Program Analysis*

HS-810 054 Fld. 4/2,4/4

THE FEDERAL-STATE PARTNERSHIP. HOW IS IT WORKING OUT?

by Robert Brenner
National Highway Safety Bureau, Washington, D.C.

Published in Traffic Safety v69 n1 p14-5,38-40 (Jan 1969)

Emphasizes the national aspects (state as well as federal government) of the highway safety program. Details the 7 priority areas eligible for federal grant funds: traffic records, the highway alcohol problem;

motor vehicle registration; emergency medical services; police traffic services, driver licensing, accident location.

Search terms: Community support, State government, Federal aid, Safety standards

HS-004 833 Fld. 4/2

GOVERNOR'S YOUTH TRAFFIC SAFETY CONFERENCE. SUMMARY OF PROCEEDINGS. CENTRAL CONNECTICUT STATE COLLEGE, NEW BRITAIN, OCTOBER 27, 1967 Connecticut. Safety Commission, Hartford

1967 24p

Includes talks by secondary school student delegates on: responsibilities of teenage drivers, defensive driving, etc. Briefly describes workshop sessions covering motorcycle safety, education and information, enforcement and penalties.

Search terms: Traffic safety programs, Connecticut*, High school drivers, Adolescent drivers*, Conferences*

AVAILABILITY: From Corporate author

HS-004 882 Fld. 3/11,4/2

THE APPROACH IS PEDESTRIAN
by Phyllis Dee Lovoca

Published in Highway User p20-2 (Aug 1967)

Describes the Pedestrian Safety Inventory Program of the American Automobile Association in teaching pedestrian safety, especially to older persons and children. Awards are given to communities which have pedestrian safety programs and low accident rates.

Search terms: Pedestrian safety, Pedestrian Safety Inventory Program*, Children, Aged*, Accident rates, Safety programs, American Automobile Association*, Community support

**4/2 Community Support
(Cont.)**

HS-004 886 Fld. 4/2

PUBLIC OPINION IN MICHIGAN
ON TRAFFIC. PRELIMINARY REPORT
Michigan State Univ., .
East Lansing. Highway Traffic
Safety Center

Jan 1966 53p

Michigan residents were interviewed regarding aspects of the traffic safety problem: its seriousness; responsibility and solutions--driver education, traffic law enforcement, vehicle inspection, car safety features. Most residents considered traffic safety a major problem assigning primary responsibility to the driver himself.

Search terms: Community support, Traffic safety, Public opinion, Michigan*, Accident prevention

AVAILABILITY: From corporate author

HS-005 007 Fld. 1/1,4/2

TRUCK HITS SCHOOL BUS: A PRACTICAL LESSON IN COMMUNITY DISASTER PLANNING by John A. Hampsey

Published in Pennsylvania Medicine v70 n5 p107-9 (May 1967)

Describes an accident which provided a good test of a community's disaster planning. The accident was well handled with cooperation among police, fire department, and hospital emergency room which was notified how many casualties to expect. It is recommended that those making disaster plans should "think small," since ten casualties at the same time will constitute a disaster in most hospitals. Good management at the accident site is also recommended instead of "siren-screaming chaos."

Search terms: Disasters, Police, Fire fighting equipment, Hospitals*,

Emergency medical services, Care of injured, School buses, Truck accidents, Motor vehicle accidents, Medical emergencies, Community support

HS-005 030 Fld. 4/2,2/0

THE ROLE OF THE COMMUNITY COLLEGE IN DEVELOPING TRAFFIC SPECIALISTS AND TECHNICIANS by Richard Bishop, Gordon Sheehe

American Assoc. of Junior Colleges, Washington, D. C.

1968 40p 36 refs

Manpower demands in traffic technician career fields are increasing rapidly as the impact of the Highway Safety Act becomes evident. The contribution which can be made by community colleges considers the following areas: motor vehicle administration, traffic engineering, police traffic services, driver and traffic safety education, and commercial highway transportation.

Search terms: Education, Universities, Community support, Schools, Manpower utilization*, Highway safety, Police traffic services, Traffic administration, Traffic engineering, Driver education, Curricula*

AVAILABILITY: From corporate author \$1.50

HS-810 069 Fld. 2/0; 4/2

REMARKS OF BRADFORD M. CRITTENDEN [ON THE STATE AND COMMUNITY HIGHWAY SAFETY PROGRAM]

by Bradford M. Crittenden

National Highway Safety Bureau, Washington, D.C. Highway Safety Programs Service

27 Nov 1967 20p

Presented to the Conference of Women Community Leaders for Highway Safety, Washington, D.C.

Discusses the work of the National Highway Safety Bureau, especially in relation to state and community highway safety programs. The safety standards are outlined and their relation to state programs discussed. The bureau will continue to work with the states to improve their highway safety programs and help them meet the standards.

Search terms: National Highway Safety Bureau*; Highway safety; Safety programs; State government; Community support; Compliance procedures; Local government*; Safety standards

AVAILABILITY: NBSB

HS-810 078 Fld. 4/2; 2/0

REMARKS AT THE AWARDS LUNCHEON OF THE AMERICAN TRUCKING ASSOCIATION'S NEWSPAPER SAFETY WRITING COMPETITION, WASHINGTON, D.C.

by F. C. Turner

Federal Highway Administration, Washington, D.C.

17 Apr 1969 7p

The importance of an accurately informed public to an effective highway safety program is stressed. Awards for the 14th Annual Newspaper Safety Writing Competition were presented for highway safety items in several categories.

Search terms: Community

4/2 Community Support (Cont.)

HS-810-078 (Cont.)

support; Public opinion; Safety programs; Highway safety; Safety propaganda

AVAILABILITY: Corporate author

HS-005 589 Fld. 4/2

'COOL IT' WEEK FOR CARELESS DRIVERS

by Howard W. Webb

Published in *Journal of Insurance Information* v30 n2 p18-22 (Mar-Apr 1969).

A highway safety week campaign, fostered by the Colorado insurance people, united for the first time the entire insurance industry of that State in an effort to execute a common project. Coordination of activities with various safety experts relating to theme, publicity, and planning, represented a new approach to traffic safety. Activities included safety talks to civic, service, social, fraternal, and religious clubs, and schools, messages to all employees of business and industry, public service television announcements, news releases, and a banquet attended by State officials. Success has insured annual repetition of the campaign.

Search terms: Safety campaigns; Traffic safety programs; Insurance industry*; Community support; Safety propaganda; Careless driving; Colorado*

HS-005 652 Fld. 4/3; 4/2

TRAFFIC ACCIDENT COSTS AND THE EFFECTIVENESS OF HIGHWAY SAFETY EXPENDITURES IN WYOMING

by Raymond W. Hooker

Wyoming Univ., Laramie. Coll. of Commerce and Industry

Nov 1966 104p 22 refs

Prepared for Insurance Institute for Highway Safety and Office of the Governor of Wyoming.

The primary purpose of this study was to determine which highway accident prevention programs were most effective in reducing the

number and cost of traffic accidents in Wyoming. Other objectives were to compare costs of Wyoming's transportation system and its motor vehicle accident rate with other states. Highway safety recommendations and criticisms by Wyoming officials associated with traffic accident prevention programs are also presented.

Search terms: Injuries; Safety programs; Accident data; Benefit cost analysis*; Costs*; Wyoming*; Accident prevention; Highway safety; Fatalities; Accident rates; Traffic safety

AVAILABILITY: Corporate author

HS-005 706 Fld. 4/2

NEW AVENUES TO HIGHWAY SAFETY

by Jack Lyndall

Published in *Fleet Owner* v63 n8 p46-9 (Aug 1968)

The Council on Responsible Driving (CORD) was established in Peoria, Ill. to reduce the toll from traffic accidents. The program includes 7 projects: defensive driving course, "Safety Town" for grade school pupils, skid control school, simulators, auto mechanic training, traffic court conferences, and a vehicle inspection tract.

Search terms: Safety programs; Illinois*; School traffic safety; Motor vehicle inspection; Community support; Defensive driving*; Children; Skidding; Driving simulation; Traffic courts; Automobile maintenance

HS-005 809 Fld. 4/4; 4/2

HANDLING GOVERNMENT-PUBLIC FORCES ON PRODUCTS AND POLICIES

by Semon E. Knudsen

Published in *SAE Journal* v77 n5 p56-7 (May 1969)

Government and the public have a larger role in shaping the automobile industry's programs than formerly. The author, who is president of Ford

Motor Co., suggests that the primary efforts of government and industry should focus on basic problems; that government gives the auto industry no credit for being interested in customers; that the public should get both sides of the controversies; and that the public casts the deciding vote by selecting its transportation. Some of the controversies involving safety, expressways versus rail transit systems, emission control, and the repair industry are briefly outlined.

Search terms: Automotive industry; Federal control; Public opinion; Public relations; Highway safety; Rapid transit railways; Freeways; Repair industry*; Exhaust emission control; Consumer preferences*; Controlled access highways.

HS-005 973 Fld. 3/4; 4/2

SAFETY MEETS THE MEDIA. A PRESS FORUM

by Merrill Mueller

Discussion includes the drinking driver problem, the public's attitude of indifference to high accident rates, the use of governors to limit speed, roadside hazards, and various aspects of driver behavior.

Search terms: Mass media*; Highway safety; Drinking drivers; Driver intoxication; Public opinion; Accident rates; Speed regulators*; Driver behavior; Hazards; Highway design

AVAILABILITY: In *Insurance Inst. for Highway Safety, Driver Behavior: Cause and Effect*, 19-21 Mar 1968, p55-75 (HS-005967)

HS-005 980 Fld. 3/4; 4/2

SOCIAL ROADBLOCKS IN UTILIZING HIGHWAY SAFETY RESEARCH

by Ronald G. Havelock

Michigan Univ., Ann Arbor. Center for Research on the Utilization of Scientific Knowledge

14 refs

Discusses the processes of knowledge dissemination and utilization in three ways—the natural process, the crisis approach which is sometimes faster,

4/2 Community Support (Cont.)

HS-005-980 (Cont.)

and the process of planned change. Outlines the ways in which highway safety knowledge is communicated to its potential audience and the difficulties of getting people to accept safety devices and safer driving practices.

Search terms: Highway safety; Sociological aspects; Psychological factors; Safety devices; Driver behavior; Safety propaganda; Community support

AVAILABILITY: In Insurance Inst. for Highway Safety, *Driver Behavior: Cause and Effect*, 19-21 Mar 1968, p217-45 (HS-005967)

HS-006 062 Fld. 2/0; 4/2

THE AAAM-ITS EDUCATIONAL POTENTIAL IN THE MEDICAL COMMUNITY

by Donald F. Huelke

Michigan Univ., Ann Arbor

The role of the American Association for Automotive Medicine in the traffic safety problem is discussed. Goals, membership expansion, promotional campaigns, journal publication, are outlined

Search terms: American Association for Automotive Medicine*; Traffic safety; Physicians*; Community support; Safety campaigns

AVAILABILITY: In American Assoc. for Automotive Medicine, *PRE-CRASH FACTORS IN TRAFFIC SAFETY*, 17-18 Oct 1968, p275-9 (HS-006 046)

HS-006 074 Fld. 4/2

IS TRAFFIC SAFETY PROMOTION HARMFUL?

by Robert S. Shelford

Published in *Safety* v55 n4 p8-9, 13 (Fall/Winter 1968-69) 7 refs

It is suggested that accident causes have been oversimplified; polls indicate that most people believe careless drivers cause nearly all accidents.

There is little public support for regulation of the motor vehicle industry, structural improvements in autos and highways, and recalls of defective vehicles. Traffic safety promotion may have helped to create apathy.

Search terms: Attitudes; Community support; Public opinion; Safety propaganda; Traffic safety; Accident causes; Careless driving; Automobile design; Highway design; Recall campaigns*; Defective vehicles; Motor vehicle industry

HS-006 287 Fld. 2/9; 4/2

PUBLIC SUPPORT FOR UNIFORM TRAFFIC SIGNS, SIGNALS AND MARKINGS

Anonymous

Published in *Traffic Engineering* v33 n5 p31-6, 38, 40 (Feb 1963)

The Manual on Uniform Traffic Control Devices for Streets and Highways is discussed. The need for uniformity; cooperation among communities and local, state, and federal government; responsibility for maintenance of traffic control devices; and future needs are discussed.

Search terms: Traffic signs; Traffic signals; Community support; Traffic control devices; Manual on Uniform Traffic Control; Devices for Streets and Highways; Traffic markings; Standardization; Local government; State government; United States Government

HS-006 294 Fld. 3/5; 4/2

LET'S TEACH THEM TO LIVE

by Paul F. Hill

Published in *Traffic Safety* v62 n1 p10-2, 36-8 (Jan 1963)

Educating drivers and the public for traffic safety is discussed. The roles of driver education in schools, traffic courts, mass media such as television, community support are discussed. Effective and ineffective techniques of safety campaigns are outlined.

Search terms: Public opinion; Mass media; Television systems; Safety propaganda; Driver education; Traffic courts; Safety campaigns; Community support; Driver attitudes

HS-820 064 Fld. 4/2; 2/0

HIGHWAY SAFETY PROGRAM PRIORITIES SEMINAR, FREDERICKSBURG, VIRGINIA, JULY 18-20, 1969. PROCEEDINGS, VOL. 10: PUBLIC INFORMATION AND HIGHWAY SAFETY

National Highway Safety Bureau, Washington, D.C.

1969 34p

Report no. PB-186 277

The degree of success of any public information program depends upon the extent to which the objectives of the overall enterprise are explicit, realistic, consistent with one another, and based upon knowledge. The failure to arrive at such objectives in the highway safety field has been the root of frustration in the public information area and other program areas. It is difficult to achieve consistency in building public support for costly highway improvements while trying to solve the same problems by changing the behavior of drivers and pedestrians. Recommendations for a more successful information program are made.

Search terms: Community support; Public opinion; Public relations; Safety propaganda; Safety campaigns; Highway safety; Driver behavior; Pedestrian behavior; Highway costs; National Highway Safety Bureau

AVAILABILITY: CFSTI as PB-186 277

4/3 COST EFFECTIVENESS

IS-004 594 Fld. 4/3,1/3

COST/EFFECTIVENESS IN TRAFFIC SAFETY. FINAL REPORT

Little (Arthur D.), Inc., Cambridge, Mass.

May 1967 194p 72refs Contract C-201-66

Relates cost-effectiveness methodology to problems in program planning for traffic safety. Describes the analytical approach (problem formulation & treatment); evaluates the status and measurement of data (traffic, accident, human element, vehicle) needed to make the approach viable in this field of application.

Search terms: Benefit cost analysis, Traffic safety, Cost data, Accident reports, Accident prevention, Accident causes, Accident analysis, Driver evaluation devices, Motor vehicle safety, Pedestrian behavior

AVAILABILITY: From CFSTI

HS-004 834 Fld. 4/3

COST-EFFECTIVENESS IN TRAFFIC SAFETY
Little (Arthur D.) Inc.
Cambridge, Mass.

1968 178p 72 refs
Praeger Special Studies in U. S. Economic and Social Development

Relates cost-effectiveness methodology to problems in program planning for traffic safety. It describes the analytical approach (problem formulation and treatment); evaluates the status and measurement of data (traffic, accident, vehicle) needed to make the approach viable in this field of application.

Search terms: Traffic safety programs, Accident

reports, Accident prevention, Traffic accidents, Accident data, Benefit cost analysis*, Cost data

AVAILABILITY: From Frederick A. Praeger, Publishers, New York

HS-800 093 Fld. 4/3

DEVELOPMENT OF A COST-EFFECTIVENESS SYSTEM FOR EVALUATING ACCIDENT COUNTERMEASURES.

VOL. 1: TECHNICAL REPORT

by W. J. Leininger, R. G. Bruce, R. M. Clinkscale, R. D. Heilbron, E. A. Lynch, Jr., F. L. McCoy, R. N. Purcell, L. H. Revzan
Operations Research, Inc., Silver Spring, Md.

31 Dec 1968 288p
Contract FH-11-6495
Report no. ORI-TR-505-Vol-1

This study provides a quantitative tool to improve management of the highway safety program by determining (a) which program standards should receive funds or (b) what would be the smallest budget allocation to achieve a desired reduction in death, injury, and property damage rates. Volume 1 (of 6) presents: an overview of the recommended system; demonstration of the operational readiness using Maryland accident data to show expenditure and resulting fatality, injury, and property damage reduction.

Search terms: Traffic safety programs, Benefit cost analysis*, Accident data, Maryland*, Systems analysis, Highway safety, Standards, Injury reduction, Mathematical models, Fatalities, Multiple regression analysis*, Statistical analysis, Property damage, Local government*

AVAILABILITY: From CFSTI

HS-800 094 Fld. 4/3

DEVELOPMENT OF A COST-EFFECTIVENESS SYSTEM FOR EVALUATING ACCIDENT COUNTERMEASURES.

VOL. 2: APPENDICES

by W. J. Leininger, R. G. Bruce, R. M. Clinkscale, R. D. Heilbron, E. A. Lynch, Jr., F. L. McCoy, R. N. Purcell, L. H. Revzan

Operations Research, Inc., Silver Spring, Md.

31 Dec 1968 129p
Contract FH-11-6495
Report no. ORI-TR-505-Vol-2

In the appendices (vol. 2 of 6): alternative effectiveness models are provided; dollar costs are equated to physical resource costs; social costs incurred through injury or death are converted into dollar term evaluation benefits; a probability model of traffic crashes and other statistical analyses are presented.

Search terms: Traffic safety programs, Highway safety, Benefit cost analysis*, Socioeconomic data, Traffic analysis data, Safety programs, Standards, Cost data, Statistical analysis, Mathematical models, Local government*, Maryland*, Injury severity, Nervous system, Brain injuries, Accident data, Property damage

AVAILABILITY: From CFSTI

HS-800 095 Fld. 4/3,4/5

DEVELOPMENT OF A COST-EFFECTIVENESS SYSTEM FOR EVALUATING ACCIDENT COUNTERMEASURES.

VOL. 3: USER'S MANUAL

by R. N. Purcell, R. N. Heilbron, D. E. Zugby
Operations Research, Inc., Silver Spring, Md.

31 Dec 1968 53p
Contract FH-11-6495
Report no. ORI-TR-505-Vol-3

The User's Manual (vol. 3 of 6) introduces the 7 basic FORTRAN IV programs (DATA, CONTEST, XPRIMX, REGRESS, OVERSEER, CEALOC, and REPORT). Flow diagrams representing input-output data, systems sequence and error messages are also included.

Search terms: Highway safety, Benefit cost analysis*, Digital computers, Computer programs, FORTRAN*, Multiple

4/3 Cost Effectiveness (Cont.)

HS-800-095 (Cont.)

regression analysis*, Statistical analysis, Systems analysis, Accident data, Traffic safety programs

AVAILABILITY: From CFSTI

HS-800 096 Fld. 4/3,4/5

DEVELOPMENT OF A COST-EFFECTIVENESS SYSTEM FOR EVALUATING ACCIDENT COUNTERMEASURES. VOL. 4: PROGRAMMER'S MANUAL by R. N. Purcell, R. D. Heilbron, D. E. Zugby Operations Research, Inc., Silver Spring, Md.

31 Dec 1968 195p
Contract FH-11-6495
Report no. ORI-TR-505-Vol-4

This manual (vol. 4 of 6) flowcharts and documents the allocation system from data input to final output for the 7 programs and their subroutines. An expanded discussion for individual programs describes systems flow charts, variable dictionaries, and listings.

Search terms: Traffic safety programs, Highway safety, Benefit cost analysis*, Computer programs, FORTRAN*, Flow charts*, Accident data

AVAILABILITY: From CFSTI

HS-800 097 Fld. 4/3,4/5

DEVELOPMENT OF A COST-EFFECTIVENESS SYSTEM FOR EVALUATING ACCIDENT COUNTERMEASURES. VOL. 5: OPERATOR'S MANUAL by R. N. Purcell, R. D. Heilbron, D. E. Zugby Operations Research, Inc., Silver Spring, Md.

31 Dec 1968 27p
Contract FH-11-6495
Report no. ORI-TR-505-Vol-5

Specific operating requirements for the individual FORTRAN programs, a user operator checklist, the deck layout,

and run diagrams are provided in the Operator's Manual (vol. 5 of 6). Programs designed for a CDC 3100 may require minor modifications for compatibility with other computer configurations.

Search terms: Traffic safety programs, Highway safety, Benefit cost analysis*, Systems analysis, Computer programs, Computers, Accident data

AVAILABILITY: From CFSTI

HS-800 098 Fld. 4/3

DEVELOPMENT OF A COST-EFFECTIVENESS SYSTEM FOR EVALUATING ACCIDENT COUNTERMEASURES. VOL. 6: SUPPORTING DOCUMENTS by W. J. Leininger, R. G. Bruce, R. M. Clinksale, R. D. Heilbron, E. A. Lynch, Jr., F. L. McCoy, R. N. Purcell, L. H. Revzan Operations Research, Inc., Silver Spring, Md.

31 Dec 1968 124p
Contract FH-11-6495
Report no. ORI-TR-505-Vol-6

Samples of Accident record forms are included in vol. 6 (of 6). These forms reflect the difficulty in converting state accident data & computer systems. Maryland's accident system was used to implement this study. Data taken from New York State highway program activities are used for the expenditure proxy. Suggested highway safety standard output measures are offered for future development as a substitute for the current expenditure data.

Search terms: Traffic safety programs, Accident records, Accident data, Automatic data processing, Cost data, Highway safety, Benefit cost analysis*, Safety programs, Standards, State government, Local government

AVAILABILITY: From CFSTI

HS-005 348 Fld.-2/9; 4/3

EVALUATION OF THE OPERATIONAL EFFECTS OF AN

"ON-FREEWAY" CONTROL SYSTEM

by Joseph A. Wattleworth; Charles E. Wallace

Texas A & M Univ., College Station. Texas Transportation Inst.

Nov 1967 68p 19 refs

Project NCHRP-20-3

Report no. TTI-RR-488-2

Rept. no. 2 on "Optimizing Freeway Corridor Operations through Traffic Surveillance, Communications and Control." Prepared for presentation at the 17th Annual Meeting, Highway Research Board, 15-19 Jan 1968.

Evaluates cost effectiveness of real-time traffic control systems. Research was done to determine motorists' responses to the system, the effects of the system during peak periods, and to perform a system analysis. The system consists of overhead lane control signs, overhead speed signs, and ramp closure signs. Concludes the present National Proving Ground Traffic Control System is not cost/effective; computers and detectors contributed little.

Search terms: Traffic flow patterns; Traffic control; Controlled access highways; Traffic congestion; Peak hour traffic; Benefit cost analysis*; Real time operations*; Highway signs; Computers; Detectors; Ramps; Television systems; Speed limits; Freeways; Systems analysis; Travel time; Driver behavior

AVAILABILITY: Corporate author

HS-005 386 Fld. 2/0; 2/4; 4/3

STANDARDS FOR HIGHWAY SAFETY IMPROVEMENTS

by Roy E. Jorgensen

Published in *American Road Builder* v44 n6 p11-3 (Jun 1967)

Criteria for highway improvements are discussed. Hazardous locations need to be identified, forecasts made of the results of remedial action, cost-effectiveness analysis of improvements made, and the benefits and costs of spot improvements and

4/3 Cost Effectiveness (Cont.)

HS-005-386 (Cont.)

overall highway modernization contrasted. Means for making these evaluations are discussed, especially a good accident records system.

Search terms: Accident location; Accident records; Benefit cost analysis*; Costs*; Highway maintenance; Forecasting; Spot improvement program*

HS-800 150 Fld. 4/3

COST-EFFECTIVENESS AND HIGHWAY SAFETY. FINAL REPORT

by G. A. Fleischer

University of Southern California, Los Angeles. Dept. of Industrial and Systems Engineering

Feb 1969 230 104 refs
Contract FH-11-6800
Report no. USCISE-100

Rept. covering 1 Feb 1968-31 Jan 1969.

A systems engineering cost-effectiveness methodology based on the analysis of 3 selected highway safety programs was developed. Operational criteria for evaluating the effectiveness of various proposed traffic safety programs, a determination of the impact of these programs on highway and traffic safety, and a method for evaluating interactions among programs are provided. The methodology is tested by reference to two safety measures, median barriers and traffic control devices.

Search terms: Benefit cost analysis*; State government; Federal aid; Highway safety; Safety programs; Computers; Traffic control devices; Fatalities; Injuries; Costs*; Median barriers; Intersections; Accident prevention

AVAILABILITY: CFSTI

HS-005 652 Fld. 4/3; 4/2

TRAFFIC ACCIDENT COSTS AND THE EFFECTIVENESS OF HIGHWAY SAFETY EXPENDITURES IN WYOMING

by Raymond W. Hooker

Wyoming Univ., Laramie. Coll. of Commerce and Industry

Nov 1966 104p 22 refs

Prepared for Insurance Institute for Highway Safety and Office of the Governor of Wyoming.

The primary purpose of this study was to determine which highway accident prevention programs were most effective in reducing the number and cost of traffic accidents in Wyoming. Other objectives were to compare costs of Wyoming's transportation system and its motor vehicle accident rate with other states. Highway safety recommendations and criticisms by Wyoming officials associated with traffic accident prevention programs are also presented.

Search terms: Injuries; Safety programs; Accident data; Benefit cost analysis*; Costs*; Wyoming*; Accident prevention; Highway safety; Fatalities; Accident rates; Traffic safety

AVAILABILITY: Corporate author

HS-005 654 Fld. 4/8; 4/3

VALUES OF TIME SAVINGS OF COMMERCIAL VEHICLES

by William G. Adkins; Allen W. Ward; William F. McFarland

Texas A and M Univ., College Station. Texas Transportation Inst.

1967 85p 200 refs
Report no. NCHRP-33; NAS-NRC-Pub-1478

Sponsored by the American Association of State Highway Officials, Washington, D.C. and the Bureau of Public Roads, Washington, D.C. Includes as Appendix F, "Value of Time Savings Accruing to Highway Vehicles: An Annotated Bibliography."

Methods for evaluating time savings are reviewed and analyzed. A cost savings approach to the determination of values of time savings is developed and applied to a composite cargo vehicle, a composite intercity bus, and a number of cargo vehicle types. The methods used are: revenue (net operating profit) method; cost savings method; cost-of-time method; and willingness-to-pay method. Cost

saving model solutions were developed.

Search terms: Travel time; Costs*; Bibliographies; Benefit cost analysis*; Cargo transportation; Buses (vehicles); Commercial vehicles;

HS-006 198 Fld. 4/3; 4/7

ANALYSIS OF THE ARITHMETICAL PROCEDURE IN HIGHWAY ECONOMY STUDY

by B. R. Ceniza

Published in *Australian Road Research Board Proceedings of the Conference*, Sydney, v2 pt1 p18-33 (1964)

Report no. Paper-112

Includes discussion and author's closure to discussion.

Of the three general methods used in highway economy studies—rate of return, benefit-cost ratio, and annual transportation cost—the modified annual transportation cost method appears the simplest and the one on which all the valid methods converge. An analysis of the arithmetical procedures of the various methods reveals their strengths and weakness. The three methods often give differing results.

Search terms: Mathematical analysis*; Benefit cost analysis*; Highway costs; Economic analysis

HS-006 199 Fld. 4/3; 2/4; 5/20

ECONOMICS OF TRUCK OPERATIONS IN URBAN AREAS

by J. M. Owens

Published in *Australian Road Research Board Proceedings of the Conference*, Sydney, v2 P11/p34-55 (1964)

18 refs

Report no. Paper-177

Includes discussion and author's closure to discussion.

A pilot speed-and-delay study was made in Melbourne to determine the effects of traffic congestion, small shipments, and industrial scatter on urban area freight transport. Consolidation of freight at source and the consequent use of articulated vehicles seemed to offer the greatest savings potential. Suggestions for the

4/3 Cost Effectiveness (Cont.)

HS-006-199 (Cont.)

planning of freeways that would permit the use of these vehicles, and of industrial parks which would include a satellite freight terminal are given. Mention is made of the findings of some American urban studies..

Search terms: Benefit cost analysis*; Melbourne*; Articulated vehicles*; Cargo transportation; Freight traffic; Traffic congestion; Central business districts; Urban planning; Freeway planning; Industrial parks*; Time factors*; Economic analysis; Trucks

Published in *Traffic Engineering* v37 n11 p33-8 (Aug 1967)

Methods are discussed for the identification of hazardous locations, the forecasting of accident reduction, cost-effectiveness analysis, and better highway accident records systems.

Search terms: Accident location; Accident prevention; Hazards; Forecasting; Benefit cost analysis; Accident records; Highway research; Accident rates

HS-006 310 Fld. 4/3; 2/4; 4/8

THE ECONOMIC FEASIBILITY OF A N EXPANDED ROADS PROGRAMME

by N. F. Clark

Published in *Australian Road Research Board Proceedings of the Third Conference*, Sydney, v2 p1 p56-85 (1964) 11 refs

Includes discussion and author's closure to discussion.

An attempt is made to show how a road construction program can be economically justified and a study of costs and benefits may help determine priorities. The place of roads expenditure in the national economy, the history of allocation of resources to roads, and its future trends are discussed. The National Association of Australian State Road Authorities needs survey and its recommendations are noted. Methods of financing road expenditures are explored.

Search terms: Benefit cost analysis; Highway construction; Economic analysis; Australia; National Assoc. of Australian State Road Authorities; Highway costs; Transportation planning; Highway planning

HS-006 755 Fld. 4/3; 1/4; 1/3

EVALUATION OF CRITERIA FOR SAFETY IMPROVEMENTS ON THE HIGHWAY

by Roy E. Jorgensen; John C. Laughland

4/4 GOVERNMENTAL ASPECTS

HS-004 411 Fld. 3/4

AN ANALYSIS OF WASHINGTON'S DRIVER IMPROVEMENT INTERVIEW: A STUDY IN PREDICTION AND CONTROL OF PROBLEM DRIVERS by Ronald A. Kleinknecht Washington. Dept. of Motor Vehicles, Olympia

Aug 1968 18p
Report-017

A great deal of discrepancy was found among 8 driver improvement analysts in scoring and categorizing drivers on decision rules checklist. Most objective of four decision rule factors, accident potential, was found to discriminate between those drivers who got additional citations and those who did not. It was concluded in light of high failure rates and low predictor potential of interview that its usefulness was questionable.

Search terms: Driver performance studies, Driver characteristics, Driver improvement, Decision making, Traffic violations, Accident proneness, Washington, Interviews

AVAILABILITY: From corporate author

HS-004 702 Fld. 4/4,4/2

NEW HIGHWAY SAFETY PROGRAM ANALYSIS, NEW NATIONAL STANDARDS, BETTER ENGINEERING by Fred Potenza

Published in Traffic Engineering v39 n4 p28-9, 32-3 (Jan 1969)

Introduces a new program (Highway Safety Program Analysis) launched by the National Safety Council to assist states, counties, cities in meeting national standards of the Highway Safety Act. The program will: identify program deficiencies and strengths, justify projects for funding,

improve public relations, etc.

Search terms: Safety programs, Highway Safety Act of 1966*, National Safety Council*, State government, Federal aid, Local government*, Compliance procedures, Highway Safety Program Analysis*

HS-810 054 Fld. 4/2,4/4

THE FEDERAL-STATE PARTNERSHIP. HOW IS IT WORKING OUT?

by Robert Brenner
National Highway Safety Bureau, Washington, D.C.

Published in Traffic Safety v69 n1 p14-5,38-40 (Jan 1969)

Emphasizes the national aspects (state as well as federal government) of the highway safety program. Details the 7 priority areas eligible for federal grant funds: traffic records, the highway alcohol problem; motor vehicle registration; emergency medical services; police traffic services, driver licensing, accident location.

Search terms: Community support, State government, Federal aid, Safety standards

HS-005 569 Fld. 2/4; 4/4

APPLYING RESEARCH FINDINGS TO HIGHWAY-DEPARTMENT OPERATIONS. PART 1

by David H. Stevens; R. H. Given; Lewis M. Chittim; Tilton E. Shelburne; John L. Beaton; J. F. Tribble

Published in Better Roads v38 n9 p33-6 (Sep 1968)

Highway officials of various states comment on the value of published research reports, research meetings and conferences, and abstracts and articles in publications serving the highway field. Means for applying the results of research are discussed.

Search terms: Highway research; Information systems; Conferences*;

State government; Administrative procedures

HS-005 570 Fld. 2/4; 4/4

APPLYING RESEARCH FINDINGS TO HIGHWAY-DEPARTMENT OPERATIONS. PART 2

by D. K. Speer; John J. Lyons; C. K. Preus; W. G. O'Hara; E. M. Johnson; T. C. Reseigh; W. R. Bellis; F. B. Mendenhall

Published in Better Roads v38 n10 p29-31, 34-5 (Oct 1968)

Highway officials of various states comment on the value of published research reports, research meetings and conferences, and abstracts and articles in publications serving the highway field. Means for applying the results of research are discussed.

Search terms: Highway research; Information systems; Conferences*; State government; Administrative procedures

HS-006 127 Fld. 4/4

ORGANIZATION OF HIGHWAY RESEARCH: SUMMARY AND CASES

by Kenneth E. Cook

Highway Research Board, Washington, D.C.

1968 71p

Report no. HRB-SR-99; NAS-Pub-1457

This special report begins with an article on considerations and guidelines for research management in developing a research program. The next section summarizes some general patterns illustrated in case studies. The final section presents detailed case studies for the 13 states and 2 research institutes visited by the staff.

Search terms: Highway research; Transportation management; Universities; Research Centers; Highway engineering; Case reports*; State government

AVAILABILITY: HRB \$ 2.20
(Includes HS-006 128)

HS-006 128 Fld. 4/4

CONSIDERATIONS AND GUIDELINES FOR RESEARCH MANAGEMENT

by Kenneth E. Cook

4/4 Governmental Aspects (Cont.)

HS-006-128 (Cont.)

Highway Research Board, Washington, D.C.

This article is a revision of a paper published in *Highway Research News* n30 (Winter 1968)

An overview of the research concept: definition, goals, management; selection and control of research projects; coordination; in-house versus contract research; research and development, financing, accounting and cost control system, communications, staffing.

Search terms: Research; Federal aid; Highway research; Management

AVAILABILITY: *In its ORGANIZATION OF HIGHWAY RESEARCH: SUMMARY AND CASES*, 1968, p1-17 (HS-006 127)

HS-006 585 Fld. 4/4

TO MANAGEMENT FROM TRAFFIC ENGINEERING

by Paul W. Rice

Published in *Traffic Quarterly* v19 n3 p435-42 (Jul 1965)

Similarities in the requirements for city managers and traffic engineers are discussed. Advice is given to traffic engineers who wish to become city managers, and it is suggested that experience in traffic engineering is good training for managing a city. Duties and qualifications of city managers are outlined.

Search terms: Local government; Administrative procedures; Traffic engineering; Urban planning

HS-810 094 Fld. 4/4

WORKING TOGETHER FOR HIGHWAY SAFETY

by Robert Brenner

National Highway Safety Bureau, Washington, D.C.

25 Sep 1969 13p

Prepared for presentation at the First Annual Governor's Conference on Traffic Safety, North Carolina Mayors, Pinehurst, N.C.

Highway safety problems and safety,

legislation are reviewed. The need for cooperation among federal, state, and local government agencies is emphasized. States will be required to submit an annual highway safety work program instead of having projects approved on an individual basis.

Search terms: State government; Federal aid; Highway safety; Safety programs; Local government; Highway Safety Act of 1966; National Traffic and Motor Vehicle Safety Act of 1966; Safety laws

AVAILABILITY: NHSB

4/5 INFORMATION TECHNOLOGY

HS-004 540 Fld. 2/4,5/22,4/5

HS-800 020

BIBLIOGRAPHY OF RESEARCH IN CRASHWORTHINESS OF VEHICLE STRUCTURE. VOL. 2
Wyle Lab., Huntsville, Ala.
by E. Meisler and,
I. Earwood
Mar 1968 81 p.
WR-68-3-[2]
FH-11-6669

AVAILABILITY: From CFSTI

Bibliography is divided by form and categories: hard cover books; bibliographies, films, publication lists, articles, pamphlets, or other general publications; subjects covered are biodynamics, crash statistics, and vehicle structures.

HS-800 041 Fld. 4/5

SURVEY OF SPECIALIZED TECHNICAL INFORMATION CENTERS. Final Report

Safety Management Inst., Washington, D.C.

30 Sep 1968 130 p.
Contract FH-11-6911

Methods are recommended for acquiring bibliographic data collections in the highway safety field for the National Highway Safety Documentation Center. Sixteen information centers are surveyed, most of which emphasize highway and motor vehicle safety, driver behavior, traffic control devices, and driver education. Automation of information systems in the highway safety field is examined.

Search terms: National Highway Safety Documentation Center; Libraries; Information systems; Information retrieval; Highway safety; Motor vehicle safety; Accident investigation; Accident records; Accident reports; Driver behavior; Driver education; Traffic control devices; Computers; Data acquisition

AVAILABILITY: CFSTI

SKIDDING AND SKID RESISTANCE. A REVIEW OF THE LITERATURE
by Thomas I. Csathy
Ontario. Dept. of Highways,
Downsview (Canada)
Mar 1964 87p 432 refs
Report no. 46

The six sections of this literature review cover general problems of vehicle skidding; practical methods of measuring pavement friction, skid resistance; influencing factors associated with road and with vehicle; and practical means of preventing skidding accidents.

Search terms: State of the art studies, Skidding, Skid resistance, Road surfaces, Tires, Tread wear, Speed, Antiskidding devices, Bibliographies, Accident prevention, Skid resistance--Bibliography*, Measurement

AVAILABILITY: From corporate author

HS-004 746 Fld. 2/0,4/5

WORLD SURVEY OF CURRENT RESEARCH AND DEVELOPMENT ON ROADS AND ROAD TRANSPORT, 1968. A REPORT COVERING AN INVENTORY OF 40 COUNTRIES International Road Federation, Washington, D. C.

Dec 1968 537p
Contract FH-11-6744
Continues the survey work performed under contract CPR-11-2655

Updates a continuing international survey of current highway research by noting progress for new and old projects. Of the total research, 6.5% represents highway safety.

Search terms: Highway research, Highway safety, Foreign countries*, Safety research, Surveys, Information systems, Highway Research Information Service*, International Road Research Documentation*

AVAILABILITY: From corporate author (Includes HS-004 747 to HS-004 749)

HS-004 877 Fld. 2/9,3/4,4/5

URBAN INTERSECTION STUDY. VOL. 7, RESOURCES ON DRIVER BEHAVIOR: ABSTRACTS by Richard A. Raub, ed. Cornell Aeronautical Lab., Inc., Buffalo, N. Y.

Sep 1968 100p
Contract CPR-11-2856
Report no. CAL-VJ-2120-V-7;
PB-180 126
Final technical report.

An annotated bibliography of over 100 publications on traffic and driver behavior, oriented to intersection studies. Entries are arranged in four categories: Traffic flow and gap acceptance, Information processing and driving behavior, Simulation, Miscellaneous.

Search terms: Intersections, Traffic data analysis, Bibliographies, Driver behavior, Traffic flow, Gap acceptance*, Data processing, Computerized simulation, Simulation, Urban intersections*

AVAILABILITY: From CFSTI as PB-180 126

**4/5 Information Technology
(Cont.)**

HS-800 088 Fld. 4/5

DOCUMENTATION CENTER DESIGN:
USER COMMUNICATIONS
Safety Management Inst.,
Washington, D. C.

Jan 1969 92p
Contract FH-11-6889

Users of the National Highway Safety Documentation Center were classified into five information user communities: research, administrator, producer, public, and media. The most significant user problem was communication. The Documentation Center and user communities did not know each other's data needs and users were not familiar with the center. It is recommended that the center should improve its relationship with its users, collect and disseminate data in meaningful formats for each identified user community, and attempt to utilize the mass media in transmitting safety messages to diverse audiences. Three studies of the center by the Highway Safety Research Institute of the University of Michigan, General Electric Tempo, and the Systems Development Corporation were utilized in preparing this report.

Search terms: National Highway Safety Documentation Center*, Communicating, Information systems, Data acquisition, Highway safety, Mass media, Safety propaganda

AVAILABILITY: From CFSTI

HS-800 095 Fld. 4/3,4/5

DEVELOPMENT OF A COST-EFFECTIVENESS SYSTEM FOR EVALUATING ACCIDENT COUNTERMEASURES.
VOL. 3: USER'S MANUAL
by R. N. Purcell,
R. N. Heilbron,
D. E. Zugby
Operations Research, Inc.,
Silver Spring, Md.

31 Dec 1968 53p
Contract FH-11-6495

Report no. ORI-TR-505-Vol-3

The User's Manual (vol. 3 of 6) introduces the 7 basic FORTRAN IV programs (DATA, CONTEST, XPRIMX, REGRESS, OVERSEER, CEALOC, and REPORT). Flow diagrams representing input-output data, systems sequence and error messages are also included.

Search terms: Highway safety, Benefit cost analysis*, Digital computers, Computer programs, FORTRAN*, Multiple regression analysis*, Statistical analysis, Systems analysis, Accident data, Traffic safety programs

AVAILABILITY: From CFSTI

HS-800 096 Fld. 4/3,4/5

DEVELOPMENT OF A COST-EFFECTIVENESS SYSTEM FOR EVALUATING ACCIDENT COUNTERMEASURES.
VOL. 4: PROGRAMMER'S MANUAL
by R. N. Purcell,
R. D. Heilbron,
D. E. Zugby
Operations Research, Inc.,
Silver Spring, Md.

31 Dec 1968 195p
Contract FH-11-6495
Report no. ORI-TR-505-Vol-4

This manual (vol. 4 of 6) flowcharts and documents the allocation system from data input to final output for the 7 programs and their subroutines. An expanded discussion for individual programs describes systems flow charts, variable dictionaries, and listings.

Search terms: Traffic safety programs, Highway safety, Benefit cost analysis*, Computer programs, FORTRAN*, Flow charts*, Accident data

AVAILABILITY: From CFSTI

HS-800 097 Fld. 4/3,4/5

DEVELOPMENT OF A COST-EFFECTIVENESS SYSTEM FOR EVALUATING ACCIDENT COUNTERMEASURES.

VOL. 5: OPERATOR'S MANUAL
by R. N. Purcell,
R. D. Heilbron,
D. E. Zugby
Operations Research, Inc.,
Silver Spring, Md.

31 Dec 1968 27p
Contract FH-11-6495
Report no. ORI-TR-505-Vol-5

Specific operating requirements for the individual FORTRAN programs, a user operator checklist, the deck layout, and run diagrams are provided in the Operator's Manual (vol. 5 of 6). Programs designed for a CDC 3100 may require minor modifications for compatibility with other computer configurations.

Search terms: Traffic safety programs, Highway safety, Benefit cost analysis*, Systems analysis, Computer programs, Computers, Accident data

AVAILABILITY: From CFSTI

HS-005 301 Fld. 4/5; 5/0

SYSTEM ON AUTOMOTIVE SAFETY INFORMATION

by Neil K. Van Allen; Robert W. Gibson, Jr.

Published in *Special Libraries* v59 n4 p251-7 (Apr 1968)

Describes the System on Automotive Safety Information (SASI) established at General Motors Research Laboratories to gather and organize all published information relating to automotive safety and automotive air pollution. The organization, methodology, outputs, users, and service philosophy are outlined.

Search terms: Highway safety; Motor vehicle safety; Air pollution; Emissions; Information systems; Systems on Automotive Safety Information*

HS-005 511 Fld. 5/6; 4/5

TWO APPLICATIONS OF AN ON-LINE DATA ACQUISITION AND REDUCTION SYSTEM

by Gene Altekroose

International Harvester Co., Chicago, Ill.

4/5 Information Technology (Cont.)

HS-005-511 (Cont.)

19-23 May 1969 11p
Report no. SAE-690498

Presented at SAE Mid-Year Meeting, Chicago, Ill

This paper discusses and compares manual and on-line computer systems for evaluating the performance of exhaust emission control systems for motor vehicles. Two applications for an on-line data acquisition and reduction system with step-by-step procedures are also discussed.

Search terms: Computers; Exhaust emission control; Dynamometers*; Test equipment; Data acquisition; Data reduction

AVAILABILITY: SAE

HS-005 974 Fld. 3/4; 4/5

SYSTEMS ANALYSIS AND THE DRIVER

by James O'Day

Michigan Univ., Ann Arbor. Highway Safety Research Information Center

7 refs

Discusses the use of systems analysis and mathematical models to analyze the problems of traffic, driver behavior, highway safety.

Search terms: Systems analysis; Mathematical models; Driver behavior; Highway safety; Safety research; Traffic research

AVAILABILITY: In Insurance Inst. for Highway Safety, *Driver Behavior: Cause and Effect*, 19-21 Mar 1968, p83-99 (HS-005967)

HS-006 129 Fld. 4/5; 3/5

THE COMPUTER: NEWEST TOOL IN DRIVER IMPROVEMENT

by Lawrence E. Schlesinger; Barbara Marx

Published in *Traffic Safety* v64 n2 p10-2, 34 (Feb 1964)

The main objective of a computer system approach is to improve co-

ordination in driver improvement methods. Requirements that need to be met to establish the proposed driver improvement system include creation of a master file, high speed data processing system to handle detailed information and produce it in a variety of forms, a satisfactory violator classification scheme, and researchable driver improvement programs. Among applications of system are: prompt issuance of advisory letters; matching training method with type of violator; evaluating training method by driver record improvement.

Search terms: Computers; Digital computers; Computer programs; Information retrieval; Data processing; Problem drivers; Violators; Driver performance; Driver improvement; Traffic safety programs; Driver records; Information systems; Advisory letters*; Driver education

HS-006 359 Fld. 4/5; 2/9

COLLECTING AND ANALYSING TRAFFIC DATA AUTOMATICALLY

by H. J. Woottton

Published in *Traffic Engineering and Control* v4 n10 p559-63 (Feb 1963)

Many traffic studies require information about vehicle flow, speed, direction of travel, and class of vehicle. No equipment has been available for recording such information automatically, but from the time pattern a vehicle creates in crossing two closely spaced detectors, it is possible to determine the information required. A method is outlined for recording such information with detectors. The computer and programs used to analyze the data are described.

Search terms: Traffic flow patterns; Detectors; Computers; Traffic data analysis; Peak hour traffic; Speed patterns; Data processing; Computer programs; Time factors; Travel patterns

HS-006 415 Fld. 5/4; 4/5

THE ANALYSIS BY COMPUTER OF A MOTOR CAR UNDERBODY STRUCTURE

by R. J. Allwood; C. C. Norville

Published in *Proceedings of the Institution of Mechanical Engineers* v180 pt2a p207-20 (1965-66) 21 refs

Structural analysis techniques developed since the introduction of digital computers are used to study a Ford Classic underbody and compare the results with those obtained from experimental tests made on an actual underbody removed from the production line. Computer analysis of the underbody is possible by treating it as an assemblage of beams and flat panels.

Search terms: Digital computers; Structural analysis; Body design; Computerized simulation; Underbodies

HS-006 553 Fld. 2/4; 4/5

COMPUTER PROGRAMS FOR HIGHWAY DESIGN. BRITISH INTEGRATED PROGRAM SYSTEM-PHASE II

Anonymous

Published in *Roads and Road Construction* v47 n553 p18-20 (Jan 1969)

Computer programs for various aspects of highway design are described. Among the aspects are automatic plotting, setting out programs, horizontal alignment for calculating curves, earthworks programs for interchanges and varying geological strata, digital ground model programs to extend the variable grid facility, perspective drawings, changes in cross-section profiles, drainage design.

Search terms: Computerized design; Highway design; Road curves; Digital computers; Computer programs; Highway drainage; Interchanges; Great Britain

HS-006 556 Fld. 2/4; 4/5

COMPUTER SIMULATION IN CONFLICTING VEHICLE STORAGE PROBLEMS

by Robert A. Jones

Published in *Traffic Engineering* v39 n5 p42-44 (Feb 1969)

If the provision of a turn storage pocket is seen as a queue sorting device in which vehicles with con-

4/5 Information Technology (Cont.)

HS-006-556 (Cont.)

flicting destinations are segregated, the technique used in design should include the effects of random distribution of turning vehicles within the approach stream and the random selection of lanes by straight-through vehicles. Computer simulation offers a comparatively simple design technique for this complex problem and allows comprehensive investigation of the effects of the improvement on traffic flow. The Monte Carlo technique is used to assign destinations to the vehicles of the arriving traffic stream.

Search terms: Turning lanes; Monte Carlo method; Queueing theory; Turning (direction change); Traffic lanes; Traffic flow; Computerized simulation; Traffic simulation; Highway design; Mathematical models

HS-006 623 Fld. 4/5

THE SAFETY INFORMATION CHALLENGE

by C. O. Miller

Published in *American Society of Safety Engineers Journal* v11 n9 p9-16 (Sep 1966) 20 refs

New ways for handling safety information are needed. This paper reviews the present situation in regard to the collection, storage, retrieval, and dissemination of safety information and some problems related to it. It is recommended that safety centers and other organizations should coordinate their efforts.

Search terms: Safety; Information retrieval; Information systems; Information theory; Data acquisition; State of the art studies; Coordination

HS-820 051 Fld. 4/5

NHSB SUBJECT CATEGORY LIST. FIRST EDITION

National Highway Safety Bureau, Washington, D.C. National Highway Safety Inst.

Sep 1969 17p

The 58 field and group categories, by which documents announced in Highway Safety Literature are arranged

for convenience in scanning, are listed. Scope notes indicating, but not necessarily limiting the subject coverage of each group are given. A subject index to these categories, and a conversion table from 1967/68 subject category headings are included.

Search terms: Information retrieval; Highway safety; Accidents; Human factors engineering; Motor vehicle safety; Safety programs

AVAILABILITY: NHSB

mental studies, and is also useful in studies of vehicle behavior at intersections.

Search terms: Parameters; Photography; Computer programs; Travel patterns; Headway; Speed patterns; Traffic flow patterns; Time factors; Environmental factors; Intersections; Traffic data analysis

HS-820 055 Fld. 4/5; 2/0

HIGHWAY SAFETY LITERATURE SUBJECT CATEGORY (FIELD/GROUP) INDEX TO ISSUE NUMBERS 1 THRU 52 (DECEMBER 1967 THRU DECEMBER 1968)

National Highway Safety Bureau, Washington, D.C.

1 Sep 1969 35p

Documents announced in issues 1-52, Dec 1967-Dec 1968 of Highway Safety Literature, are indexed by current field and group categories. A conversion table from the subject category headings, under which these documents were originally announced, to the current system is included.

Search terms: Information retrieval; Highway safety; Accidents; Human factors engineering; Motor vehicle safety; Safety programs

AVAILABILITY: NHSB

HS-006 736 Fld. 2/9; 4/5

A TECHNIQUE FOR THE MEASUREMENT OF TRAFFIC PARAMETERS IN ENVIRONMENTAL STUDIES

by Robert Jones

Published in *Traffic Engineering & Control* v10 n7 p358-60 (Nov 1968)

Measurements of traffic parameters were made using time lapse photography. A program was written to compute for each vehicle 7 descriptive parameters: ground ordinate; vehicle travel; spacing or headway; time headway; stream speed; flow; and concentration or spacing. The analysis of these movements can be used to identify associated effects, particularly in environ-

4/6 INSURANCE

HS-004 418 Fld. 4/6,1/2

AUTOMOBILE LIABILITY, THE BOILING TEMPEST
by William Schwartz,
Harry Levine

Published in Medical Trial Technique Quarterly v13 p57-61 (Jun 1967)

Problems connected with mounting dissatisfaction with current auto injury liability procedures are presented. Basic protection coverage without consideration of fault (tort relationships), merit plans, accident experience rating are suggested so that more equitable economic, medical, legal and rehabilitative solutions can be instituted.

Search terms: Insurance, Compensation, Automobile accidents, Injuries, Liability insurance

HS-004 419 Fld. 4/6

CRASH SIMULATOR, HIGH ENERGY-- SERVO CONTROLLED
Monterey Research Lab., Inc., Calif.

Mar 1968 33p
Report No. MRL-499

System provides laboratory simulation of automobile crashes at speeds up to 70 mph with full size cars. Advantages over the pneumatic impulse systems presently in use are: simulated pulses are quickly and precisely adjusted by simply changing pressures in the programmers, and much higher speeds can be simulated with full size cars because of the greater energy capability. Details on equipment are given.

Search terms: High speed, Crash simulation, Laboratory experiments, Impact sleds, Servomechanisms

AVAILABILITY: From corporate author

HS-004 422 Fld. 4/6

IS THE EMPLOYER LIABLE WHEN A HUSBAND INJURES HIS WIFE
by Leon J. Warshaw,
John V. Thornton

Published in Journal of Occupational Medicine v7 n.10 p535 (Oct 1965)

The common-law rule, and still probably the rule applied by most courts, is that a wife may not hold her husband liable if she is hurt because of his negligence. However, if the negligence occurs in the course of his employment, the majority of states will probably permit her to sue the employer.

Search terms: Legislation, Injuries, Husbands, Wives, Legal responsibility, Employment energy capability. Details on equipment are given.

Search terms: High speed, Crash simulation, Laboratory experiments, Impact sleds, Servomechanisms

AVAILABILITY: From corporate author

HS-004 777 Fld. 4/6

JUDICIAL AND LEGISLATIVE APPROACHES TO AUTOMOBILE ACCIDENT COMPENSATION
by Elmer D. Martin 3rd.

Published in Wisconsin Law Review v1968 n2 p527-50 (1968)

Criticizes the present system under which fault has to be determined before insurance claims are paid. This system takes too long, is arbitrary, overcompensates smaller claims, and does not adequately compensate the most serious cases. Discusses the difficulties involved in proving the presence or absence of negligence in accidents. Suggests legislative improvement of the fault system by

requiring liability insurance, payment of compensation from a public fund, and better legal procedures. Preferable to this would be enacting the no-fault system for auto insurance, thus doing away with many of the present problems. Articles deals chiefly with Wisconsin cases.

Search terms: Insurance claims, Insurance, Liability insurance*, Compensation*, Legal factors, Automobile accidents, Legislation, Negligence*, No-fault insurance plan*, Wisconsin*

HS-004 919 Fld. 1/3,4/6

ACCIDENT AND VIOLATION RATES FOR GREATER SEATTLE CLERGYMEN
by Alfred Crancer, Jr., Lucille McMurray Washington. Dept. of Motor Vehicles, Olympia

Mar 1968 8p
Report no. 009

The driving records of 100 clergymen were examined to see if higher auto insurance rates for this occupational group are reasonable. The study concludes that such rates are not justifiable on the basis of accident rates. Procedure for determining violation and accident rates, types of violations, age distribution of clergymen studied, and comparison to average drivers are given.

Search terms: Insurance, Accident rates, Traffic violations, Age factor in driving, Washington*, Clergymen*, Insurance rates*

AVAILABILITY: From corporate author

HS-004 948 Fld. 4/6

SELECTING AUTOMOBILE INSURANCE
Washington State Univ., Pullman. Cooperative Extension Service

Jun 1968 10p
Report no. EM-2710 (Rev.)

4/6 Insurance (Cont.)

HS-004-948 (Cont.)

Basic types of automobile insurance (liability, collision, etc.), types of companies, how to buy, how to evaluate company's record, costs of insurance, are broad topics in this bulletin designed for popular appeal.

Search terms: Insurance, Automobile drivers

AVAILABILITY: From corporate author

HS-004 975 Fld. 4/6

INSURANCE INDUSTRY BATTLES TO KEEP PRESENT AUTOMOBILE LIABILITY SYSTEM
Anonymous

Published in *Trial* v5 n1 p60 (Dec 1968-Jan 1969)

Discusses the proposed changes in auto insurance, which would eliminate the tort system and have each person compensated by his own insurance company regardless of fault. Suggests that this would eliminate an incentive for careful driving and would be discouraging to safety efforts.

Search terms: Insurance industry*, Insurance, Liability insurance*, Legal factors, Accident factors, Highway safety

HS-004 976 Fld. 4/6

STUDY TO DETERMINE THE PERCENTAGE OF INSURED PASSENGER VEHICLES
by Peggy Ann O'Neill, Michael Rodeill Washington. Dept. of Motor Vehicles, Olympia

Aug 1968 10p
Report no. 018

A mail questionnaire survey of 2,000 passenger car owners in Washington indicates that 88% of their vehicles are insured. The random sample of drivers shows breakdown by county. Estimates are

given of the percentages of drivers having liability and collision coverage.

Search terms: Questionnaires*, Insurance, Liability insurance*, Collision insurance*, Automobiles, Washington*, Financial responsibility

AVAILABILITY: From corporate author

HS-005 175 Fld. 4/6

A U T O I N S U R A N C E I S P R O F I T A B L E!

by Richard L. Norgarrd; George J. Schick

Published in *Trial* v4 n6 p24-6 (Oct-Nov 1968)

Examines accounting system which permits contrasting views concerning insurance company profits. Concludes that automobile insurance companies have had a considerably better return than other companies at time of study.

Search terms: Automobiles; Insurance; Profits*; Accounting*; Insurance rates*; Insurance industry*

HS-005 260 Fld. 1/3; 4/6

E X P E R T W I T N E S S E S - T R A F F I C A C C I D E N T A N A L Y S T

by Ralph Waldo Bassett, Jr.

Published in *West Virginia Law Review* v71 n1 p45-50 (Dec 1968) 35 refs

A traffic accident analyst is defined as a person who uses special skills and knowledge to reconstruct an automobile accident. When the opinion of an expert will aid the jury in making correct determination of the factual issues a traffic accident analyst may be used. Various court decisions involving the use of such experts are discussed, chiefly West Virginia cases.

Search terms: Accident analysis; Courts; West Virginia*; Accident reconstruction*; Evidence*; Negligence*; Accident responsibility

HS-005 310 Fld. 5/14; 4/6

S E A T B E L T S A N D C O N T R I B

UTORY NEGLIGENCE

by Frank Edward Jolliffe

Published in *West Virginia Law Review* v71 n1 p37-44 (Dec 1968) 34 refs

Failure to wear an available seat belt should not be considered contributory negligence. Such an interpretation by the courts would be a windfall for negligent defenders. Discusses court decisions in which failure to use seat belt was not held to be negligence. Since 60% of auto occupants do not use their belts, courts cannot impose their usage as a requirement for recovering damages.

Search terms: West Virginia*; Courts; Seat belt usage*; Accident responsibility; Negligence*; Legal factors

HS-005 446 Fld. 4/1; 4/6

F A I L U R E T O R E M O V E I G N I T I O N K E Y - T H E K E Y T O L I A B I L I T Y

by Larry M. Von Wald

Published in *South Dakota Law Review* v14 n1 p115-28 (Win 1969)

The question of whether the owner of a motor vehicle is to be held liable for the damaging or injurious acts of a thief where the key has been left in the ignition is explored.

Search terms: Theft; Stolen cars; Accident responsibility; Legal responsibility*; Negligence*; Ignition systems

HS-005 447 Fld. 4/6

D O E S T H E F A U L T S Y S T E M O P T I M A L L Y C O N T R O L P R I M A R Y A C C I D E N T C O S T S ?

by Guido Calabresi

Published in *Law and Contemporary Problems* v33 n3 p429-63 (Summer 1968)

Examines the present system which determines the existence of liability and negligence on a case-by-case basis. Concludes that the fault system cannot be justified in terms of justice or fairness and is poor at controlling the costs of accidents. Suggests that a mixed system of insurance and accident cost control would be more desirable than the fault system.

4/6 Insurance (Cont.)

HS-005-447 (Cont.)

Search terms: Insurance; Accident responsibility; Costs*; Financial responsibility; Legal responsibility*; Accident factors; Liability*; Negligence*; No-fault insurance plan*

HS-005 558 Fld. 4/6

SAFETY IN TRANSPORTATION: THE ROLE OF GOVERNMENT

by Lester B. Lave

Published in *Law and Contemporary Problems* v33 n3 p512-35 (Summer 1968)

The liability system relating to transportation accidents is very poor. It has no consistent rule for determining the cost of property damage or the compensation due a victim for his suffering. The allocation of accident costs is also largely arbitrary, and the system takes too long to function. Government can help the adjustment of the market by collecting information on the efficacy of safety-related acts, standardizing claims procedures, and improving the workings of liability laws and adjudication procedures, as well as by establishing safety standards.

Search terms: Safety programs; Insurance; Safety laws; Federal control; Data acquisition; Compensation*; Liability*; Property damage; Injury factors; Costs*; Accident factors; Insurance claims; Safety standards; Courts

HS-005 559 Fld. 4/6

AUTOMOBILE ACCIDENTS, TORT LAW, EXTERNALITIES, AND INSURANCE: AN ECONOMIST'S CRITIQUE

by William Vickrey

Published in *Law and Contemporary Problems* v33 n3 p464-87 (Summer 1968)

Little attention has been given by economists to the question of how the cost of accidents should be borne. This article examines several facets of the problem: fault versus externality, marginal versus average

accident costs, inappropriate patterns of premium payment, shared liability, system imperfections, damages.

Search terms: Legal facts; Insurance; Financial responsibility; Insurance claims; Accident responsibility; Economic factors; Insurance industry*; Insurance rates*; Costs*; Liability*; Torts*

HS-005-876 Fld. 4/6

THE COMPLETE PERSONAL PROTECTION AUTOMOBILE INSURANCE PLAN

Anonymous

Published in *Journal of Insurance Information* v30 n1 p8-13 (Jan-Feb 1969)

The no-fault auto insurance plan is outlined. Its basic principles are: that fault is not a proper factor to determine reimbursement for auto accident injuries; that pain and suffering should be excluded; that accident costs should be borne by motorists; that the present auto insurance industry should run any system at a reasonable profit; That any alternative system should cost less than present system and provide the injured with a higher proportion of the insurance premium dollar.

Search terms: No-fault insurance plan*; Costs*; Liability insurance*; Insurance industry*; Injury factors; Legal responsibility*; Liability*; Automobile accidents; Insurance claims

HS-005 877 Fld. 4/6

IS FAULT OUTMODED?

Anonymous

Published in *Journal of American Insurance* v45 n1 p19-21 (Jan-Feb 1969)

An individual is legally at fault and responsible for paying damages when he causes injury as a result of conduct which fails to meet a standard of reasonableness. This concept is under fire as it applies to automobile accidents. It is criticized as cumbersome and inequitable, especially since a victim whose own negligence contributed to his injury is denied compensation. This doctrine is not strictly adhered to by jury decisions and insurance claims practices. Alternatives to this system such as guaranteed benefits are outlined. An evolution of the present system is recommended.

Search terms: Insurance industry*; Insurance claims; Liability insurance*; No-fault insurance plan*; Assigned risk plan*; Cotter insurance plan*; Liability*; Automobile accidents; Negligence*

Search terms: Liability*; Negligence*; Injury factors; Courts; Insurance claims; Liability insurance*; Automobile accidents; Insurance industry*; Legal factors; Legal responsibility*

4/6 Insurance (Cont.)

HS-005 878 Fld. 4/6; 4/8

TO SOLVE AUTO PROBLEMS: REPLAN AND REBUILD INNER CITIES?

by Theodore I. Koskoff

Published in *Trial* v4 n4 p44-6
(Jun-Jul 1968)

The problem of automobile insurance in the city is discussed. Rates are higher for cars used in cities. Inner city ghetto areas pose unique problems in auto insurance. It is suggested that the automobile is unsuited for the needs of efficient, rapid, safe transit in the city society of the very near future and should be replaced by rapid transit rail systems. Increasingly dominant age groups in city society pay prohibitive insurance premiums for their cars because of their environment and their age.

Search terms: Insurance industry*; Urban areas; Inner city areas*; Rapid transit railways; Insurance rates*; Age factor in driving; Urban geography*; Urban planning

HS-006 126 Fld. 4/1; 4/6

NEGLIGENCE PER SE--TRAFFIC VIOLATIONS

by J. Max Shelton

Published in *Tennessee Law Review*
v30 p556-68 (Sum 1963) 38 refs

The trend is to be more flexible in applying rules on the effect of criminal violations in determining proper standards of conduct in negligence cases. Various court decisions dealing with contributory negligence and legal liability are discussed.

Search terms: Negligence*; Evidence*; Traffic violations; Liability*; Court decisions*; Traffic violations

HS-006 130 Fld. 4/6; 3/4

USE OF PSYCHOLOGICAL INVENTORY IN WRITING INSURANCE FOR YOUTHFUL MALE DRIVERS

by Charles F. Haner

Published in *Traffic Safety Research Review* v7 n1 p5-9 (Mar 1963)

Insurance applicant's score on a psychological test is used to predict his accident rate and accident severity, and the premium set at a level commensurate with the risk he represents. The predictive validity of the psychological inventory is described. It seems statistically certain that the test can identify drivers likely to be negligent, to have serious injury accidents, and to have their licenses suspended or revoked. The test is based on identification of attitudes.

Search terms: Driver attitudes; Psychological tests; Accident rates; Accident severity; Insurance rates*; Age factor in driving; Sex factor in driving; Negligence*; Injury factors; Injury severity; Driver license suspension; Driver license revocation; Young adult drivers*; Adolescent drivers; Forecasting

HS-006 197 Fld. 4/1; 4/6

IMPUTED CONTRIBUTORY NEGLIGENCE: THE ANOMALY IN CALIFORNIA VEHICLE CODE SECTION 17150

by Jack H. Friedenthal

Published in *Stanford Law Review*
v17 p55-76 (Nov 1964) 78 refs

Editor's note: Section 17150 was repealed in 1967.

The doctrine of imputed contributory negligence has recently been subjected to sharp attack both by courts and legal commentators throughout the country. A 1937 amendment to the California Vehicle Code (Section 17150) makes the vehicle owner responsible for the negligence of a person driving the owner's car with the latter's express or implied permission. This study analyzes the arguments that the imputation clause should be changed or eliminated. California's position has been adopted by only a small minority of courts.

Search terms: Negligence*; Accident responsibility; Financial responsibility; California*; Court decisions*; Legal responsibility*; Motor vehicle ownership; Loaned vehicles*

HS-006 231 Fld. 3/1; 4/6

ALCOHOL IN TRAFFIC ACCI- DENTS. THE EFFECT ON AUTO-

MOBILE INSURANCE COSTS, COURT CASE LOADS, AND UNDERWRITING SELECTION

by Donald E. O'Brien

Texas. State Board of Insurance,
Austin

Sep 1968 24p

A review and analysis of automobile accident statistics and research studies pertinent to drinking drivers is presented. Also determined is the impact of alcohol on automobile insurance accident costs, as a stimulus to litigation and as a contributing factor to underwriting selection. Alcohol is a factor in 50% of all fatalities. Accidents involving alcohol are a major factor in the high cost of automobile insurance; such accidents result in more court cases; and unless this type of accident is controlled the cost and effectiveness of any type of automobile insurance system will be unsatisfactory. Varying blood alcohol levels used as the standard of drunkenness in different states are also discussed.

Search terms: Insurance industry; Insurance rates; Drinking drivers; Fatalities; Accident studies; Driver intoxication; Blood alcohol levels; Alcoholism; Automobile accidents; Accident data

AVAILABILITY: Corporate author

HS-006 406 Fld. 4/6; 1/3

NEW HOPE FOR CONSENSUS IN THE AUTOMOBILE INJURY IMPASSE

by Alfred F. Conard; J. Ethan Jacobs

Published in *American Bar Association Journal* v52 p533-8 (Jun 1966) 24 refs

The adoption of a compensation system for victims of auto accidents has been urged for 34 years. The argument between those who want a compensation system and those who believe in the present tort liability system continues. The present system is criticized for its slowness and failure to compensate victims adequately. It is claimed that tort liability does not deter bad driving because drivers either have insurance or have no assets that can be seized. Modification of the tort liability system is urged, and suggestions are

4/6 Insurance (Cont.)

HS-006-406 (Cont.)

given for compensating victims through insurance and other means.

Search terms: Liability; Torts; Automobile accidents; Compensation; Insurance; Costs; Financial responsibility; Insurance claims

HS-006 407 Fld. 4/6

HOW RATES ARE MADE: THE INGREDIENTS OF THE AUTOMOBILE INSURANCE PREMIUM

Anonymous

Published in *Journal of Insurance Information* v26 n4 p4-8 (Jul-Aug 1965)

Among the factors in setting insurance rates are: where the motorist lives; the frequency of insurance claims in his "rating territory"; the cost of each claim in the community's total insurance bill; the ages of drivers; their sex and marital status; drivers' individual safety records; how the car is used; the type of car; the number of cars in the family.

Search terms: Insurance rates; Insurance claims; Age factor in accidents; Sex factor in accidents; Marital status; Driver records; Motor vehicle characteristics; Insurance industry; Socioeconomic data

HS-006 408 Fld. 4/6

IS AUTO INSURANCE MEETING THE PUBLIC'S NEEDS?

by James A. Wickman

Published in *Journal of Insurance Information* v26 n2 p18-23 (Mar-Apr 1965)

Discusses how well the driving public and society at large are served by the insurance industry. Outlines the relation of drivers' records and insurance rates, including unfair price discrimination and age and sex of driver. Cancellation of coverage, assigned risk plans, and financially irresponsible drivers are discussed. It is concluded that the auto insurance market is reasonably effective in serving the public interest.

Search terms: Insurance; Insurance industry; Insurance rates; Financial

responsibility; Assigned risk plan; Age factor in accidents; Sex factor in accidents; Insurance cancellations

cases and court decisions under the act are discussed.

Search terms: Court decisions; Liability insurance; Insurance claims; Financial responsibility; Legal responsibility; Virginia; Uninsured drivers

HS-006 756 Fld. 4/6

A NEW APPROACH TO AUTO INSURANCE

by Jeffrey O'Connell

Published in *America* v116 n23 p830-1, 834 (10 Jun 1967)

The Keeton-O'Connell "basic protection plan" is described. It would pay automobile insurance claims without regard to who was at fault. It is suggested that this plan would clear the courts of most accident cases and result in lower rates than the present system. It is claimed that the present system takes too long, is wasteful and uncertain, and overburdens the legal system.

Search terms: No-fault insurance plan; Insurance claims; Courts; Legal factors; Liability; Accident factors; Insurance rates

Search terms: No-fault insurance plan; Liability insurance; Insurance rates; Insurance claims; Costs; Compensation; Courts; Constitutional law; Problem drivers; Fraud; Canada; United States

HS-006 526 Fld. 4/6

UNINSURED MOTORIST COVERAGE—PRESENT AND FUTURE

by Collins Denny III

Published in *Virginia Law Review* v52 n3 p538-64 (Apr 1966) 114 refs

Virginia enacted an Uninsured Motorist Act in 1958. The author contends that this act has been construed, beyond its original objective, to provide greater protection for victims of uninsured motorists than is afforded victims of insured motorists. He recommends revision of the act and extension of its coverage. Various

4/7 MATHEMATICAL SCIENCES

HS-004 312 Fld. 4/7; 5/9

PERIODIC MOTOR VEHICLE INSPECTION AND PREDICTIVE ANALYTICAL MODELING

by James O'Day, Jay S. Creswell

Michigan Univ., Ann Arbor. Highway Safety Research Inst.

Published in *HSRI Research* n3 p1-8 (Oct 1968)

Using a model relating vehicle component failure and inspection effectiveness parameters, it seems probable that an annual motor vehicle inspection system would have little effect on the defect rates of components which fail frequently but are easily detected and repaired by owners. However, inspection should be effective when applied to components for which fault detection is low. Lighting systems are an example of the first category, steering operation defects of the second. Alternatives to inspection are suggested, such as built-in warning devices for worn or failing parts, and improved design.

Search terms: Motor vehicle inspection; Defective vehicles; Steering gear; Automobile design; Warning systems; Mathematical models; Parameters; Lighting equipment

HS-800 023 4/7; 5/4

A SCALE MODEL STUDY OF CRASH ENERGY DISSIPATING VEHICLE STRUCTURES. VOL. 5

by G. C. Jai, G. C. Chan

Wyle Lab., Huntsville, Ala.

Mar 1968 109 p.

Contract FH-11-6669

Report no. WR-68-3-Vol-5; PB-180 470

Energy dissipation mechanisms of motor vehicle structures can be simulated by scale model experiments, which can be of significant value toward formulation of an analytical model. Gives details on tests with two

crash models. Test results indicate that energy dissipation depends upon impact velocity, barrier shape, and cross-section area. It is possible to design optimum energy dissipators which are independent of impact velocities for each type barrier.

Search terms: Energy absorption; Motor vehicle design; Models; Crash simulation; Barrier design; Speed

AVAILABILITY: CFSTI

HS-004 365 Fld. 4/7

A NOTE ON THE MATHEMATICAL BIOLOGY OF AUTOMOBILE DRIVING

by N. Rashevsky

Published in *Bulletin of Mathematical Biophysics* v29 p187-8 (Mar 1967) Grant GM-12032

The 3 different stimuli for a corrective turn, namely the distance from the edge of the lane, the rate of approach to the edge, and the angle between the direction of the car & the direction of the lane may all act simultaneously. Mathematical formulae show that tracking curve (for this situation) is stable below a critical speed and becomes unstable above it.

Search terms: Mathematical models; Turning (direction change); Tracking curve; Man machine systems

HS-004 420 Fld. 4/7, 2/9

DATA REDUCTION SYSTEM FOR TRAFFIC FLOW SENSING AND SURVEILLANCE SYSTEM

Cornell Aeronautical Lab., Inc., Buffalo, N.Y.

30 Sep 1968 48p
Contract CPR-11-0956
Report no. CAL-YB-1957-x-104

Planning requires large samples of detailed information about traffic behavior at actual intersections, especially quantitative information on vehicle position, attitude, velocity, and deceleration in interval before accidents. An engineering model for gathering this

information in the form of calibrated moving pictures is described. Data can be put on magnetic tape and processed on a general purpose digital computer.

Search terms: Traffic planning, Traffic characteristics, Digital computers, Magnetic tapes, Intersections, Velocity, Deceleration, Photography, Accident research, Traffic data analysis, Models, Intersections

HS-004 421 Fld. 4/7, 3/0

MAN-MACHINE INTERACTION IN AUTOMOBILE DRIVING

by N. Rashevsky

Published in Progress in Biocybernetics v1 p188-200 (Jan 1964)

Mathematical modeling is used to study the complex car-driver feedback system. Variables considered are: speed, car length, turn reaction, the central nervous system. Author concludes that safe driving (accident avoidance) involves such purely external design factors as size and shape of car, size and shape of road as well as neurobiophysical factors. The two kinds of factors cannot be meaningfully separated.

Search terms: Mathematical models, Accident prevention, Speed control, Turning, Motor vehicle design, Highway design, Reactions (Physiology), Driver vehicle interface.

HS-004 434 Fld. 1/0, 4/7, 5/14

HEADREST AND SEAT BACK DESIGN PROPOSALS

by John L. Martinez

Tulane Univ., New Orleans, La.

Report no. SAE-680775

Nonlinear mathematical model is used to predict head motions during automotive rear-end collisions. Physical characteristics of seat back are extremely important in mechanics of occupant's

4/7 Mathematical Sciences (Cont.)

HS-004-434 (Cont.)

torso and head. Velocity, displacement, and acceleration patterns of head and torso were studied. Concept of yielding seat back is studied as design for attenuating impact experienced in rear-end collision.

Search terms: Headrests, Seat back design, Rear end collisions, Head injuries, Mathematical models; Mechanics (physics), Velocity, Acceleration patterns, Physiology

AVAILABILITY: In Society of

HS-004 439 Fld. 1/0,4/7,5/4

OCCUPANT RESPONSE VERSUS VEHICLE CRUSH: A TOTAL SYSTEM APPROACH
by J. E. Thompson
Chrysler Corp., Detroit, Mich.

Report no. SAE-680780

Designing vehicle structure to minimize restrained occupant responses to multicar collisions requires detailed study of vehicle-occupant system. Two mathematical models have been developed to allow such investigation. An operational computer program has also been developed. Validations of the occupant model and vehicle structure model will be supported by static load tests and two car vehicle crash data for the particular case of side impact. Program is concerned especially with controlling collapse of vehicular structure.

Search terms: Mathematical models, Vehicle design, Restraint systems, Collisions (accidents), Computer programs, Side impact collisions, Static loads, Static tests, Crash research, Collapse, Occupant-vehicle interface, Structural design

AVAILABILITY: In Society of

Automotive Engineers, Inc., New York, Proceedings of Twelfth Stapp Car Crash Conference, October 22-23, 1968, p220-39 (HS-004 429)

HS-004 443 Fld. 1/0,3/2,4/7

DYNAMIC RESPONSE OF THE HUMAN CADAVER HEAD COMPARED TO A SIMPLE MATHEMATICAL MODEL
by V. R. Hodgson, L. M. Patrick
Wayne State Univ., Detroit, Mich.

Report no. SAE-680784

A method is derived for comparing the impact response of a simple system to a general shaped pulse to that of the cadaver head. Under certain impact conditions it is found that a simple model responds to cadaver force-time input within 5% of cadaver occiput response over a broad range of pulse durations and acceleration levels. Ten conclusions are presented.

Search terms: Head injuries, Acceleration patterns, Mathematical models, Impact studies, Cadavers

AVAILABILITY: In Society of Automotive Engineers, Inc., New York, Proceedings of Twelfth Stapp Car Crash Conference, October 22-23, 1968, p280-301 (HS-004 429)

HS-004 447 Fld. 1/0,4/7,5/14

THE INFLUENCE OF FASTENING ON THE IMPACT BEHAVIOR OF SAFETY GLASS
by F. Bruckner, H. Krings
Vereinigte Glaswerke, Mannheim (West Germany)

Report no. SAE-680788

With regard to forces of reaction caused by impact of a passenger against the fastened windshield, the different reactions of various types of safety glass are considered.

Forces of reaction and reaction times must remain within human tolerance limits. New windshield systems are presented which take into account the human tolerance values of the cervical spine.

Search terms: Impact tolerance, Windshields, Impact tests, Head injuries, Spinal injuries, Laminated glass

AVAILABILITY: In Society of Automotive Engineers, Inc., New York, Proceedings of Twelfth Stapp Car Crash Conference, October 22-23, 1968, p352-9 (HS-004 429)

HS-004 449 Fld. 1/0,4/7,5/14

IMPACT AMPLIFICATION IN EUROPEAN COMPACTS
by Bertil Aldman, Arne Asberg
Sweden. Statens Trafiksäkerhetsråd, Stockholm

Report no. SAE-680790

Response of a restrained car occupant to deceleration patterns recorded at barrier impacts with European compact cars is studied by using a simple model in an analog computer. The general influence of restraint characteristics and slack is illustrated. Peak accelerations and total displacements of the occupant as a function of slack are given.

Search terms: European vehicles, Compact cars, Deceleration patterns, Barrier collisions, Analog computers, Restraint systems, Time factor, Mathematical models, Acceleration patterns

AVAILABILITY: In Society of Automotive Engineers, Inc., New York, Proceedings of

Twelfth Stapp Car Crash Conference, October 22-23, 1968, p387-401 (HS-004 429)

4/7 Mathematical Sciences (Cont.)

HS-004 450 Fld. 1/0,4/7

VEHICLE ACCELERATOR CRASH SIMULATOR

by L. M. Patrick, D. J. Van Kirk, G. W. Nyquist
Wayne State Univ., Detroit,
Mich. Dept. of Engineering
Mechanics and Michigan State
Univ., East Lansing

Report no. SAE-680791

Describes WHAM II (Wayne Horizontal Accelerator Mechanism) which accelerates and decelerates a sled or a modified auto on its own wheels. It has extensive safety features for operating personnel.

Search terms: Acceleration patterns, Deceleration patterns, Impact sleds, Impact tests, Test facilities, Crash simulation, Vehicle simulation

AVAILABILITY: In Society of Automotive Engineers, Inc., New York, Proceedings of Twelfth Stapp Car Crash Conference, October 22-23, 1968, p402-23 (HS-004 429)

HS-004 452 Fld. 1/0,4/7,5/14

HUMAN MUSCULAR RESTRAINT DURING SLED DECELERATION
by Richard W. Armstrong, Hal P. Waters, J. P. Stapp
National Bureau of Standards, Gaithersburg, Md. and National Highway Safety Bureau, Washington, D.C.

Report no. SAE-680793

Value of restraint by legs and arms has been disregarded in development of auto restraint systems. Tests made by 6571st Aeromedical Research Laboratory, Holloman Air Force Base, New Mexico, measured forces exerted on a foot rest during 15 g decelerations. For lap belt only, 26% of subject's kinetic energy absorbed was attributed to seat belt and 55% to restraint by legs.

Consideration in auto design should be given to providing adequate means for bracing of subject with legs to take advantage of this restraint in crashes. Strength and design of steering wheel rims on which human makes some effort to restrain himself should be reexamined.

Search terms: Seat belts, Restraint systems, Kinetic energy, Steering wheels, Wheel design, Automobile design, Sleds, Deceleration patterns

AVAILABILITY: In Society of Automotive Engineers, Inc., New York, Proceedings of Twelfth Stapp Car Crash Conference, October 22-23, 1968, p440-62 (HS-004 429)

HS-004 543 Fld. 2/9,4/7

PROBLEMS WITH TURNPIKE TRAFFIC INDEXES: CONSTRUCTION AND FORECASTING
by Wesley H. Long

Published in Traffic Quarterly v22 n2 p345-58 (Jul 1968)

Regression and dummy variable techniques are used to overcome problems in constructing monthly traffic indexes for growing highways. Changing seasonal adjustment factors should be used, since seasonal traffic patterns are a continually developing phenomenon. The index computer taking account of these considerations has been used in examples of traffic prediction, illustrating some uses to which traffic data can be put. Projections are useful in planning highway construction, estimating tool revenues, disposition of state police, measuring tourism. Study was based on Maine Turnpike.

Search terms: Statistical analysis, Regression analysis*, Variables*, Traffic flow patterns, Traffic research, Police, Computers, Highway planning, Tourists*, Tolls (changes), Maine*

HS-004 549 Fld. 5/4,4/7

ON THE LATERAL STABILITY OF ARTICULATED HIGHWAY VEHICLES
by Howard Dugoff, I. Robert Ehrlich
Stevens Inst. of Tech., Hoboken, N. J.

Feb 1968 84p 37refs
Contract DL Proj. 2828/480
PHS-AC00162
Report no. R-1241

Lateral dynamic stability of an articulated vehicle (a tractor-semitrailer) is theoretically analyzed. Investigation suggests the desirability of developing a technology permitting the automotive designer to use (rather than degrade) aerodynamics effects to improve vehicle handling qualities.

Search terms: Stability, Aerodynamics, Computer programs, Equations, Motion, Articulated vehicles*, Motor vehicles*, Handling (motor vehicles)

AVAILABILITY: From corporate author

HS-004 595 Fld. 4/7,5/14

MULTIDIMENSIONAL MATHEMATICAL MODELING OF OCCUPANT DYNAMICS UNDER CRASH CONDITIONS
by V. L. Roberts, D. H. Robbins
Michigan Univ., Ann Arbor.
Highway Safety Research Inst.

12p
Report no. SAE-690248
Presented at International Automotive Engineering Congress, Detroit, Mich.
13 17 Jan 1969

A series of mathematical models of the interaction between an occupant and the interior of a vehicle is presented. Parameter studies are discussed for belt material properties, belt slack, belt geometric configuration, and comparison of seats with and without headrests in rear impact. Three-dimensional models are also discussed;

4/7 Mathematical Sciences (Cont.)

HS-004-595 (Cont.)

these are a logical extension of current simulation efforts in order to provide insight into occupant response in oblique and lateral impact as well as nonsymmetric restraint systems.

Search terms: Mathematical models, Occupant-vehicle interface, Parameters, Materials tests, Headrests, Crash simulation, Restraint systems, Rear end collisions, Impact collisions

AVAILABILITY: From SAE

HS-004 738 Fld. 5/22,4/7

ROAD TESTING OF WHEEL SLIP CONTROL SYSTEMS IN THE LABORATORY
by Edwin E. Stewart, Lauren L. Bowler, General Motors Corp., Detroit, Mich.

13-17 Jan 1969 9p
Report no. SAE-690215
Presented at International Automotive Engineering Congress, Detroit, Mich.

Use of a laboratory simulator to evaluate performance of wheel slip control systems under controlled operating conditions is reported. An analog computer is interconnected with a hydraulic brake system and wheel slip control hardware to form a

hybrid simulation of a vehicle installation. Analog computer can also be used to simulate vehicle dynamics and tire-to-road friction characteristics. Simulator accuracy is established by correlating laboratory results with road data. Advantages and disadvantages of using simulator in place of road testing are discussed.

Search terms: Wheel design, Wheels, Laboratory tests, Analog computers, Vehicle simula-

tion, Driving simulation, Road tests, Hydraulic brakes, Tire-road conditions, Friction, Motor vehicle dynamics

AVAILABILITY: From SAE

HS-004 778 Fld. 4/7,2/9

AN EXTENDED MODEL FOR CAR-FOLLOWING
by Sten Bexelius

Published in Transportation Research v1 n1 p13-21 (Mar 1968) 14 refs

Reviews the work of various authors on car-following models and compares equations used.

Search terms: Mathematical models, Traffic flow patterns, Equations, Following distance

HS-004 814 Fld. 2/9,4/7

THE OVERSATURATED SIGNALIZED INTERSECTION--SOME STATISTICS
by C. J. Ancker, Jr., A. V. Gafarian, R. K. Gray

Published in Transportation Science v2 n4 p340-61 (Nov 1968) 13 refs

Data on the time between arrivals of successive vehicles at an intersection with no downstream bottleneck were collected and analyzed. Statistical analysis will be used to provide information for Monte Carlo simulations of traffic phenomena.

Search terms: Statistical analysis, Simulation, Mathematical models, Data acquisition, Traffic density, Traffic flow, Intersections, Signal lights, Computers

HS-004 829 Fld. 3/12,4/7

AN INVESTIGATION INTO SIGHT DISTANCES ON RURAL TRUNK ROADS WITH SOME THEORETICAL APPLICATIONS
by H. C. Hall
Road Research Lab.,

Crowthorne, Berks. (England)

Correlogram analysis techniques are used to determine the nature of variations in sight distance on rural trunk roads in England and Wales. Examples are given of typical distributions of poor and good sight distance (when overtaking and passing) for use in a computer simulation of traffic flow.

Search terms: Mathematical models, Traffic Flow, Rural highways, Two lane highways, Overtaking (driving), Visibility, Computerized simulation, Great Britain*

AVAILABILITY: From corporate author

HS-004 835 Fld. 4/7,5/22

HYDRODYNAMICS OF AIRCRAFT TIRE HYDROPLANING
by S. Tsakonas, C. J. Henry, W. R. Jacobs
Stevens Inst. of Tech., Hoboken, N. J.

Aug 1968 51p 11 refs
Contract NSR-31-003-016
Report no. 1238; NASA-CR-1125

This analysis furnishes families of curves which determine the boundary between the hydroplaning and non-hydroplaning condition, depending on the geometry of the planing surface, its position relative to the runway, the geometry of the footprint pressure distribution and the depth of the water on the runway.

Search terms: Hydrodynamics*, Wet skidding, Mathematical models, Pneumatic tires, Aircraft tires

AVAILABILITY: From CFSTI \$3.00

HS-004 920 Fld. 1/3,3/4,5/4, 4/7

CENTER FOR ACCIDENT PREVENTION
Dunlap and Associates, Inc., Darien, Conn.

Nov 1965 46p
Report no. PP-65-94

4/7 Mathematical Sciences (Cont.)

HS-004-920 (Cont.)

Accidents stem from human error, the function of the highway, and the design of the automobile. The goals of Dunlap's Center for Accident Prevention are described and its systems-oriented approach to accident prevention discussed. Accidents are viewed as human errors to be designed out of a complex man-machine system. In this connection dynamics of vehicle steering behavior and following behavior have been studied, together with risk-taking behavior and cost-effectiveness of accident research and prevention programs.

Search terms: Accident causes, Automobile design, Highway design, Accident prevention, Man machine systems, Steering dynamics, Benefit cost analysis*, Following distance, Driver behavior, Reckless driving, Accident research

AVAILABILITY: From corporate author

HS-004 963 Fld. 1/2,1/3,4/7

FATAL AND INJURY ACCIDENT RATES ON FEDERAL-AID AND OTHER HIGHWAY SYSTEMS, 1967
Bureau of Public Roads, Washington, D. C.

1969 40p

Statistical tables give fatality rate trends by highway system; fatality and fatal-accident rates by highway system and state; injury and injury-accident rates by highway system and state; fatality and injury data related to vehicle registrations, population, and licensed drivers; fatalities, fatal accidents, and travel; injuries, injury accidents, and travel.

Search terms: Statistics*, Accident data, Interstate highway system, Fatalities, Injuries, Accident types, Motor vehicle registration,

Populations, Driver licensing, Highway usage, Federal aid, Rural highways, Accident rates, Vehicle miles*

AVAILABILITY: From GPO \$0.45

HS-004 977 Fld. 4/7,5/22

AN ANALYSIS OF THE DYNAMICS OF AUTOMOBILES DURING SIMULTANEOUS CORNERING AND RIDE MOTIONS
by Raymond R. McHenry
Cornell Aeronautical Lab., Inc., Buffalo, N.Y.

8 Jan 1969 67p
Contract CPR-11-3988

Presented at Institution of Mechanical Engineers Symposium "Handling of Vehicles under Emergency Conditions".

A mathematical model of an automobile is described, which permits the study of simultaneous cornering and ride motions on irregular terrain. A major departure from previous analytical treatments of vehicles is abandonment of the concept of a vehicle-fixed "hinge" to approximate the changing virtual axis about which roll takes place. Empirical relationships used to generate tire forces are presented in detail. A computer graphics display technique has been developed to produce perspective drawings of vehicle and terrain. Research is part of a project to prevent single vehicle accidents on rural highways.

Search terms: Mathematical models, Cornering, Motion, Driving simulation, Computerized simulation, Tire loads, Rural accidents, Single vehicle accidents, Suspension systems (vehicles), Road surfaces, Accident prevention, Torque, Automobile simulators, Braking, Costs, Roll*, Camber

AVAILABILITY: From corporate author

HS-005 064 Fld. 2/9, 4/7

GAP ACCEPTANCE CHARACTERISTICS FOR RAMP-FREEWAY

SURVEILLANCE AND CONTROL

by Donald R. Drew

Texas A and M Univ., College Station. Texas Transportation Inst.

Published in *Highway Research Record* n157 p108-43 (1967)

Gap acceptance and merging delay characteristics were studied for six entrance ramps. Merging vehicles were divided into two groups, those which accepted the first gap and those which accepted a later gap. Based on a queueing model, a ramp metering technique was developed. Need exists for an automatic ramp control technique.

Search terms: Gap acceptance*, Queueing theory*, Merging traffic, Time factors*, Ramps, Freeways, Traffic control, Traffic surveys, Mathematical analysis

HS-005 087 Fld. 5/4, 1/3, 4/7

VEHICLE DYNAMICS IN SINGLE-VEHICLE ACCIDENTS: VALIDATION AND EXTENSIONS OF A COMPUTER SIMULATION, INTERIM TECHNICAL REPORT

by Raymond R. McHenry, Norman J. Deleys

Cornell Aeronautical Lab., Inc., Buffalo, N.Y.

Dec 1968 293p 28 refs
Contract CPR-11-3988

Report no. CAL-VJ-2251-V-3; PB-182 663

Vol. 1 is HS-000 529, PB-175 919,
Vol. 2 is HS-005 086, PB-182 662.

Excellent correlation for a variety of violent maneuvers (mostly ride and cornering responses) was obtained by comparing computer simulated predictions with measured results from full-scale experiments. This simulation research is expected to make an important contribution toward safety.

Search terms: Digital computers, Single vehicle accidents, Vehicle simulation, Computerized simulation, Accident simulation, Mathematical models, Motor vehicle handling

AVAILABILITY: CFSTI as PB-182 663

4/7 Mathematical Sciences (Cont.)

HS-005 115 Fld. 2/9, 4/7

DELAYS CAUSED BY RIGHT-TURNING VEHICLES

by D. H. Reid

Published in *Transportation Science* v2 n2 p160-71 (May 1968)

Presents a mathematical model for behavior of right-turning vehicles at an uncontrolled intersection on a two-lane major road with a minor road, vehicles on the major road having absolute priority. Random traffic is postulated on the major road where vehicles cannot turn right because of oncoming traffic. Gap acceptance mechanism is included. Study deals with British traffic conditions.

Search terms: Mathematical models, Turning right, Intersections, Gap acceptance*, Traffic flow, Two lane highways, Great Britain*

HS-005 176 Fld. 4/7; 1/3

DEVELOPMENT AND EVALUATION OF DETERMINISTIC MODELS FOR ESTIMATING INFLUENCE OF A FREEWAY ACCIDENT ON DELAY AND SAFETY

by Satish R. Desai

California Univ., Berkeley; Operations Research Center

Mar 1968 96p 6 refs

Grant NSF-GK-1684

Report no. ORC-68-4

To aid planned accident detection servicing systems for critical freeway sections, a deterministic queue model and a series of mathematical models were developed and tested.

Search terms: Mathematical models; Traffic flow; Time factors*; Queueing theory*; Traffic congestion; Freeways; Accident surveillance; Traffic surveillance*; Traffic simulation; Traffic capacity

AVAILABILITY: Corporate author

HS-005 220 Fld. 2/9; 4/7

A SENSITIVITY ANALYSIS OF

EMPIRICALLY DERIVED CAR-FOLLOWING MODELS

by Thomas H. Rockwell; Ronald L. Ernst; Albert Hanken

Ohio State Univ., Columbus

Published in *Transportation Research* v2 p363-73 (1968) 8 refs

Purpose of this study was to examine the sensitivity of empirically derived car-following models to time delays on predictor variables, lead-car velocity programs, subjects, and replications within subjects. Regression models are illustrated and conclusions discussed.

Search terms: Car following*; Time factors*; Speed; Traffic data analysis; Regression analysis*; Statistical analysis; Computerized simulation; Driver-vehicle interface; Simulation models; Road tests

HS-005 222 Fld. 2/9; 4/7

TRAFFIC DYNAMICS: CAR FOLLOWING STUDIES

by T. Constantine; A. P. Young

Published in *Traffic Engineering and Control* v8 n9 p551-4 (Jan 1967) 7 refs

Car following theories are briefly described, an experimental technique developed for testing the theories under actual traffic conditions is illustrated. Spacing and relative velocity are obtained photographically.

Search terms: Mathematical models*; Traffic flow; Photography; Car following*; Traffic data analysis; Speed; Gap acceptance*

HS-005 225 Fld. 2/9; 4/7

REFINEMENT AND TESTING OF URBAN ARTERIAL AND NETWORK SIMULATION

by Frederick A. Wagner, Jr.; Frank C. Barnes; Daniel L. Gerlough

Planning Research Corp., Los Angeles, Calif.

Nov 1967 197p 17 refs

Contract CPR-11-2806

Report no. PRC-R-1064; PB-177 605

A digital computer simulation model of traffic operation and control on urban arterials and networks was

tested in Los Angeles traffic conditions. Improvements in the simulation model included refinement of pedestrian-vehicle conflicts at signalized intersections, platoon dispersion logic using variability of vehicle speeds and passing behavior, refinement of queue discharge logic, traffic responsive signal control techniques, and modified format. Statistical analyses substantiated the inherent realism of the model. The model used was TRANS (traffic network simulation model).

Search terms: Passing (driving); Driver behavior; Urban highways; Statistical analysis; Traffic simulation; Computer programs; Traffic control devices; Pedestrian-vehicle interface; Queueing theory*; Digital computers; Simulation models; Traffic control; Los Angeles*; Intersections; Speed patterns

AVAILABILITY: CFSTI as PB-177 605

HS-005 242 Fld. 4/7; 2/9

MATHEMATICAL RESEARCH IN TRAFFIC FLOW

by C. William Hamilton

Published in *High Speed Ground Transportation Journal* v1 n3 p339-46 (Sep 1967) 7 refs

Part of the theory of traffic flow consists of mathematical modeling approaches to practical problems of traffic engineering. The car-following and fluid-analogy approaches are among those being rapidly expanded, and efforts are being made to combine the various modeling approaches into a single unified theory of traffic flow.

Search terms: Traffic flow; Mathematical models; Traffic engineering; Traffic systems; Car following*; Driver behavior

HS-800 130 Fld. 5/22; 4/7

THE SKIDDING OF VEHICLES—A DYNAMIC ANALYSIS. PROGRESS REPORT FOR THE PERIOD SEPTEMBER 1967-SEPTEMBER 1968

Carnegie-Mellon Univ., Pittsburgh, Pa.

6 Nov 1968 94p 20 refs

Contract NBS-CST-430; FH-11-6090

4/7 Mathematical Sciences (Cont.)

HS-800-130 (Cont.)

It is possible to set up a mathematical model of an automobile to determine when skidding will take place and to determine the motion of the vehicle subsequently. A model of ten degrees of freedom of motion is proposed for an independent suspension, four-wheeled vehicle with pneumatic tires. Tire deflections, shock absorber deflections, roll and pitch angles of the car, tire force equations, driving and road conditions, and wind loads are calculated. Maximum capable skid resistance is defined as the total vertical load times the coefficient of friction. Effects for car velocity and damping of tires in the determination of skid resistance are discussed.

Search terms: Driving conditions; Mathematical models; Pneumatic tires; Computerized simulation; Motor vehicle handling; Vehicle stability; Skidding; Wet skidding; Cornering; Shock absorbers; Rolling; Tire-road conditions; Wind (meteorology); Skid resistance; Speed

AVAILABILITY: CFSTI

HS-005 275 Fld. 2/9; 4/7

STABILITY OF RECIPROCAL-SPACING TYPE CAR FOLLOWING MODELS

by Ernest A. Unwin; Lucien Duckstein

Published in *Transportation Science* v1 n2 p95-108 (May 1967) 17 refs

Mathematical functions suitable to describe lead-car behavior are examined. Stability of a nonlinear car-following model is defined rigorously. Previous phase plane results show that reciprocal-spacing model is barely stable, whereas an asymptotically stable model may describe the dynamics more closely. Such a model is derived and results presented showing the relative behavior of the actual model with time delay and the proposed model

Search terms: Car following*; Mathematical analysis*; Mathematical models; Traffic dynamics; Time factors*; Traffic data analysis;

Traffic flow patterns; Single lane traffic*

HS-005 276 Fld. 2/9; 4/7

ALLOCATIONS OF SERVICING PERIODS THAT MINIMIZE AVERAGE DELAY FOR N TIME-SHARED TRAFFIC STREAMS

by R. Rangarajan; R. M. Oliver

Published in *Transportation Science* v1 n2 p74-80 (May 1967)

The optimal allocation of servicing periods to a facility servicing N incoming traffic streams is determined. It is assumed that stream flows are deterministic, that there is a fixed amount of time lost when the server switches attention between traffic streams, and that the objective is to minimize time average delay

Search terms: Mathematical analysis; Traffic flow patterns; Time factors*; Traffic data analysis; Mathematical models; Traffic signals; Traffic control devices

HS-005 311 Fld. 5/18; 4/7

A THEORY FOR DRIVER STEERING CONTROL OF MOTOR VEHICLES

by David H. Weir; Duane T. McRuer

Published in *Highway Research Record* n247 p7-28 (1968) 30 refs

Guidance and control theory provide the basis for structuring an analytical model describing the driver's steering control. The model's elements are the vehicle equations of motion, the human operator's response characteristics, and descriptions of the roadway environment. Models give the highway engineer a tool useful to determine the role of each system element, such as the driver and the vehicle; to define their interaction; and to assess the effect of design changes.

Search terms: Mathematical models; Steering (driving); Vehicle guidance; Systems engineering; Vehicle stability; Highway design; Traffic control; Driver-vehicle interface; Motion; Driver behavior; Highway characteristics; Steering dynamics; Motor vehicle dynamics; Environmental factors

HS-005 312 Fld. 5/20; 4/7

TRUCK RIDE—A MATHEMATICAL AND EMPIRICAL STUDY

by Wm. D. Walther; David Gossard; Phillip Fensel

Dayton Steel Foundry Co., Ohio; Purdue Univ., Lafayette, Ind.; Brown Univ., Providence, R.I.

13-17 Jan 1969 16p 10 refs
Report no. SAE-690099

Presented at International Automotive Engineering Congress, Detroit, Mich.

A mathematical model of a tractor-trailer vehicle as a vibrating system was developed. Principles of vibration theory were applied to the model while a digital computer was employed to investigate the complex system. The mathematical results were used as a basis for empirical study. Characteristics for significant ride improvement as well as limitations of some parameters for improving ride are discussed.

Search terms: Mathematical models; Vibration; Digital computers; Tractor-trailers; Trucks; Motion; Motor vehicle design; Riding motion

AVAILABILITY: SAE

HS-005 328 Fld. 2/4; 4/7

A DIGITAL COMPUTER PROGRAM TO SIMULATE THE PASSAGE OF A VEHICLE OVER A ROAD SURFACE

by W. R. Bellini; E. N. Thrower

England. Road Research Lab., Crowthorne, Berks.

1968 24p
Report no. RRL-LR-181; PB-182 097

Research on the dynamic behavior of roads under moving vehicles includes an investigation of the additional loading applied to the road by the passage of heavy commercial vehicles over surface irregularities. This note describes computer programs, written for an I. C. T. "Atlas" computer, for the study of dynamic loading.

Search terms: Computerized simulation; Vehicle simulation; Computer programs; Digital computers; Road surfaces; Pavement surface texture; Dynamic loads; Commercial vehicles

**4/7 Mathematical Sciences
(Cont.)**

HS-005-328 (Cont.)

AVAILABILITY: CFSTI as PB-182
097

HS-005 342 Fld. 2/9; 4/7

**ACCELERATION NOISE AND
TRAFFIC CONGESTION**

by R. T. Underwood

Published in *Traffic Engineering and Control* v10 n3 p120-3, 130 (Jul 1968) 27 refs

Measurements of congestion and the related quality of traffic flow are summarized. Results of tests carried out on roads in Victoria, Australia, are reported. Acceleration noise and a related parameter (the mean velocity gradient) are compared with travel time as measures of traffic congestion. The data can be applied to transportation planning.

Search terms: Traffic congestion; Acceleration (physics); Travel time; Mathematical analysis; Speed; Australia; Traffic flow; Motor vehicle noise; Transportation planning

HS-005 347 Fld. 2/9; 4/7

**INTENSITY OF COMMERCIAL
TRAFFIC GENERATION BY
INDUSTRY**

by D. N. M. Starkie

Published in *Traffic Engineering and Control* v8 n9 p558-60 (Jan 1967)

The commercial vehicle has been neglected in traffic research, despite its importance. Certain hypotheses concerning commercial vehicle trip generation in Great Britain have been tested. It appears that commercial vehicle trip generation models used in transportation studies have adopted doubtful assumptions.

Search terms: Statistical analysis; Routes; Commercial vehicles; Urban areas; Transportation patterns; Traffic flow patterns; Models; Traffic data analysis; Great Britain*

HS-005 398 Fld. 2/9; 4/7

**SOME TRAFFIC SYSTEM
ANALYSIS TECHNIQUES**

by Joseph A. Wattleworth; Charles E. Wallace

Texas A and M Univ., College Station. Texas Transportation Inst.

Sept 1967 40p 9 refs

Project NCHRP-20-3

Report no. TTI-RR-488-4

Rept. no. 4 on Optimizing Freeway Corridor Operations through Traffic Surveillance, Communications and Control

Techniques for evaluating large traffic systems are badly needed. The input-output analysis technique for analysis of a freeway system is presented. Network analysis techniques are described, including total travel estimates, with statistical models of each. Aerial photography is used in estimating travel time. Techniques for single route analysis are described. A network information system is outlined.

Search terms: Systems analysis; Traffic data analysis; Aerial photography*; Traffic systems; Traffic flow; Travel time; Input-output analysis*; Statistical analysis; Information systems; Highway usage; Freeways

AVAILABILITY: Corporate author

HS-005 415 Fld. 5/14; 4/7

**DYNAMIC OPTIMIZATION OF A
VISCOELASTIC STRUCTURE: THE
SEATBELT PROBLEM**

by W. Nachbar; J. B. Schimpfoder

California Univ. San Diego, La Jolla. Dept. of the Aerospace and Mechanical Engineering Sciences

Nov 1968 46p 8 refs

Contact N00014-67-A-0109-0003

Report no. TR-25; AD-679 651

Design parameters are optimized to allow the speed of the vehicle before impact to have the largest permissible value consistent with constraints imposed for the safety of the belt user. Constraints for displacement, speed, and force of the seat belt and wearer are outlined. A viscoelastic model was found nearly 40% more effective than purely elastic material.

Search terms: Seat belt design; Impact protection; Restraint systems; Materials tests; Parameters;

Speed; Viscoelasticity*; Mathematical analysis*; Optimization*

AVAILABILITY: CFSTI as AD-679
651

HS-005 434 Fld. 2/9; 4/7

**AN AUTOMATIC SYSTEM FOR
LONGITUDINAL CONTROL OF
INDIVIDUAL VEHICLES**

by R. L. Cosgriff; J. J. English; W. B. Roecka

Published in *Highway Research Record* n122 p7-18 (1966)

In order to meet the requirements for a system to control individual vehicles in a traffic stream it was necessary to combine linear and non-linear modes of control. The system has been analyzed in the car-following situation in single lane traffic with up to three cars in a line. Results of present analysis indicate that good performance can be expected. More extensive evaluation for many cars in a platoon and for comparison with the present manual system has not been completed.

Search terms: Traffic control; Car following*; Automatically guided automobiles; Manual control; Mathematical analysis

HS-005 437 Fld. 2/9; 4/7

**THE EFFECT OF RIGHT-TURNING
VEHICLES ON SATURATION
FLOW THROUGH SIGNALIZED
INTERSECTIONS**

by R. L. Pretty

Published in *Australian Road Research Board Proceedings of the Third Conference*, Sydney v3 pt1 p460-70 (1966)

Report no. Paper-263

Describes a theoretical method using computer simulation for estimating the reduction in saturation flow through a signalized intersection due to the presence of right-turning vehicles. Parameters are volume of the given flow, percentage of right-turners, volume of opposing flow, and percentage of right-turners in opposing flow. Regression analysis gives saturation flow in terms of the

4/7 Mathematical Sciences (Cont.)

HS-005-437 (Cont.)

four parameters.

Search terms: Computerized simulation; Regression analysis*; Parameters; Turning right; Traffic flow; Intersections; Traffic signals; Traffic capacity

HS-005 439 Fld. 2/9; 4/7

FORCED MERGING IN TRAFFIC

by W. S. Jewell

Published in *Operations Research* v12 n6 p858-69 (Nov/Dec 1964) 12 refs

A vehicle waiting at an intersection with a major road makes a merging maneuver into mainstream traffic. This paper examines the resulting disturbance made by this forced entry and shows that disturbance propagation is equivalent to a related queueing model. There is some minimal mainstream headway which should be forced in order to maximize the rate at which entries can be made from the secondary road. Two measures of accident potential for the merging maneuver are discussed.

Search terms: Merging traffic; Mathematical models; Gap acceptance*; Queuing theory*; Traffic flow; Accident risks; Traffic permeability; Traffic data analysis

given, and convergence is discussed.

Search terms: Forecasting; Collisions (accidents); Mathematical analysis*; Traffic data analysis; Speed patterns; Traffic flow patterns; Passing (driving)

HS-005 449 Fld. 4/7; 5/4

COMPUTER-AIDED SIMULATION OF ENGINEERING SYSTEMS

by Wayne C. Hamann

Ford Motor Co., Dearborn, Mich.

19-23 May 1969 14p 7 refs
Report no. SAE-690499

Presented at SAE Mid-Year Meeting, Chicago, Ill.

The various computer techniques for simulation of dynamic mechanical systems are described. A problem involving simulation of motion of an auto tire-wheel system under various conditions of brake torque is solved using an analog computer. A number of typical automotive simulation problems are briefly described. The current and potential impact of time sharing and computer graphics systems on engineering simulation is discussed.

Search terms: Computerized simulation; Computerized design*; Analog computers; Automotive engineering; Tire-vehicle systems; Time sharing*; Simulation models; Braking; Motion; Torque

AVAILABILITY: SAE

HS-005 448 Fld. 4/7

TWO-DIMENSIONAL COLLISION IN PARALLEL PATHS

by Celso de Renna e Souza

Published in *Operations Research* v14 n1 p32-8 (Jan-Feb 1967) 12 refs

Grant NSF-GK-355

Partially from Doctoral thesis, and partially supported by NSF.

One case of "blind approach" is that in which two vehicles travel with different speeds along parallel mean paths in a two-dimensional region. The probability of safe passage is calculated. A lower bound for the probability of absence of zero-crossings is

ween two cities. The calculus of variations is used to derive the optimum curvature principle: the curvature of an optimum location highway at each point is equal to the logarithmic directional derivative of the criterion function perpendicular to the route. The meaning of the principle is clarified by graphic descriptions and a numerical example. The principle will be helpful to highway engineers.

Search terms: Highway design; Highway planning; Mathematical analysis*; Costs*; Routes; Logarithms*; Road curves

HS-005 551 Fld. 2/9; 4/7

ANALYSIS OF EXPERIMENTS ON SINGLE-LANE BUS FLOW

by R. Rothery; R. Silver; R. Herman; C. Torner

Published in *Operations Research* v12 n6 p913-33 (Nov/Dec 1964) 10 refs

Using pairs of buses theoretical "car-following" models of single-lane traffic flow, which had been shown by previous work to be valid for automobiles, are examined for this type of heavy vehicle and found to provide a good representation of the detailed manner in which one bus follows another. Stability and steady state characteristics of a stream of buses have been examined.

Search terms: Car following*; Mathematical models; Traffic flow; Buses (vehicles); Steady state; Traffic characteristics

HS-005 567 Fld. 1/3; 4/7

COMPUTER PREDICTS CAR MOTIONS, "DRAWS" CARTOONS

Anonymous

Published in *Transportation Research Review* p4-5 (3rd-4th Q 1968)

Experiments using mathematical models to describe the mechanics of various car jumps have been conducted at the Cornell Aeronautical Laboratory. Computerized simulation produces an animated three dimensional display using cathoderay-tubes and motion picture film. The work is

Examines the problem of determining the best possible highway route bet-

4/7 Mathematical Sciences (Cont.)

HS-005-567 (Cont.)

part of research on single-vehicle accidents.

Search terms: Single vehicle accidents; Photography; Crash simulation; Computerized simulation; Mathematical models; Forecasting; Motion

HS-005 603 Fld. 5/18; 4/7

EFFECT OF BODY TORSIONAL STIFFNESS ON CORNERING STABILITY

by P. W. Sharman

Published in *Automotive Design Engineering* v8 p46-7 (Apr 1969)

The assumption that the wheel vertical reactions of a vehicle under sideways acceleration are distributed in the same ratios as in the static reactions, takes no account of the true transfer of torque to the front and rear suspensions. Since the wheel reactions are a statically indeterminate set of forces, the transfer of torque is a function of the torsional stiffness, the distribution of torsional stiffness and the suspension stiffness. A simple model is proposed and analyzed which accounts for these effects, and the influence of torsional stiffness on the cornering stability of the model are discussed.

Search terms: Mathematical models; Cornering; Torsion*; Torque; Suspension systems (vehicles); Acceleration (physics); Motor vehicle performance

HS-005 708 Fld. 4/7; 2/5; 5/10

SCALES OF LUMINANCE AND APPARENT BRIGHTNESS

by P. A. Jay

Published in *Light and Lighting* v60 p42-5 (Feb 1967) 6 refs

Lighting designers need a simple way to indicate the brightness of different surfaces. A logarithmic scale of luminance, while not accurately representing the human perception of brightness, would be convenient. The

principle could be extended to specify the visual field by employing a logarithmic scale of illumination which could be combined with a reflectance scale to provide a dual-scale system of specifying surface brightness.

Search terms: Visual perception; Luminance; Brightness; Logarithms; Illuminating; Lighting design; Visibility

HS-005 713 Fld. 5/4; 4/7

GYROSCOPICALLY INDUCED FAILURE IN MULTIPLE DISC CLUTCHES, ITS CHARACTERISTICS AND ITS CURES

by Conrad R. Hilpert

Twin Disc Clutch Co., Inc., Rockford, Ill.

13-17 Jan 1969 13p

Report no. SAE-690066

Presented at International Automotive Engineering Congress, Detroit, Mich.

A failure commonly called "clutch plate flutter" is explained and cures are discussed. The complete theoretical and practical cases are detailed. It is concluded that flutter is gyroscopic in origin, can be defined mathematically, occurs only in counter-rotating clutches, and can be eliminated by minor design innovations requiring no additional parts. Vehicle is unspecified except as a "crawler."

Search terms: Tracked vehicles*; Vehicle design; Clutches*; Vibration; Automotive transmissions; Clutch failures*; Mathematical analysis*; Flutter*

HS-005 735 Fld. 1/3; 4/7

NSC COMPUTER OPENS UP NEW AVENUES OF ACCIDENT INVESTIGATION

Anonymous

Published in *Traffic Safety* v68 n12 p16-7, 36 (Dec 1968)

The National Safety Council's new computer system will process accident data of all kinds to define patterns, indicate probable relationships and isolate out-of-norm situations in

groups of accidents. A new probing technique called "tree search" provides for the study of accident data to almost any depth. Such detailed specific reports can serve as important guidelines in the search for better accident countermeasures.

Search terms: Accident data; Computers; Information systems; Accident analysis; Accident factors

HS-005 749 Fld. 2/9; 4/7

TRAFFIC ASSIGNMENT BY IBM

by Gerald Wood

Published in *Traffic Quarterly* v15 n2 p331-340 (Apr 1961)

A transportation study being made in a small Missouri city is testing the use of computers to assign traffic to the arterial street network. Costs, program control, and reliability of the computer equipment are discussed. Control of lane capacity is one of the major problems. Traffic planning in larger Missouri cities is also discussed.

Search terms: Computers; Traffic flow; Missouri*; Streets; Traffic control; Costs*; Traffic planning; Traffic lanes; Computer programs

HS-005 750 Fld. 2/9; 4/7

MULTIPLE ENTRIES IN TRAFFIC

by William S. Jewell

Published in *Journal of the Society for Industrial and Applied Mathematics* v11 n4 p872-85 (Dec 1963)

15 refs

Contract Nonr-222(83)

The multiple-entry queueing problem of traffic has been studied. Experimental data on intersection dynamics would verify the assumptions of the multiple entry model. Given gap acceptance criteria, the problem is to determine the statistics of waiting time of secondary units until an acceptable headway appears.

Search terms: Queueing theory*; Mathematical models; Merging traffic; Gap acceptance*; Traffic flow; Intersections; Time factors*; Access control

4/7 Mathematical Sciences (Cont.)

HS-005 853 Fld. 5/18; 4/7

RIDE-COMFORT AND ROAD HOLDING

by P. Chenchanna

Published in *Automobile Engineer*
v59 n8 p296-300 (Jul 1969)

An analog computer has been used to evaluate a model containing all the necessary non-linear elements, such as dampers and spring representation of tires, in the simulation system. The characteristics of differential shock absorbers with different damping constants in compression and rebound were determined. Ride comfort was evaluated after passing the signal through a filter similar to human sensitivity. Influence of road surface and engine were important factors in ride comfort

Search terms: Motor vehicle handling; Damping*; Comfort; Vehicle stability; Tires; Analog computers; Driving simulation; Computerized simulation; Automobile engines; Simulation models; Shock absorbers; Human body simulation; Road surfaces; Mathematical models; Riding motion; Suspension systems (vehicles)

HS-005 864 Fld. 1/3; 4/7

THE CONNECTICUT CRACKDOWN ON SPEEDING: TIME-SERIES DATA IN QUASI-EXPERIMENTAL ANALYSIS

by Donald T. Campbell; H. Laurence Ross

Published in *Law & Society Review*
v3 n1 p33-53 (Aug 1968)

Contract 3-20-001

In late 1955, Connecticut began a policy of mandatory driver license suspension for thirty days for a first speeding offense, 60 days suspension for second offense, and indefinite suspension for a third offense. In six months more than 5,000 drivers had their licenses suspended and traffic fatalities had declined 15%. Fatalities began to rise again, however, about to the previous level. The validity of the results claimed for the speeding

crackdown is examined. It is concluded that the crackdown was a substantial enforcement effort, somewhat mitigated in practice by courts and police, but that it emphasized only one factor in the accident problem.

Search terms: Traffic law enforcement; Driver license suspension; High speed; Connecticut*; Fatalities; Courts; Police; Accident factors; Accident causes; Statistical analysis; Time series analysis*

HS-005 960 Fld. 2/9; 4/7

PROPERTIES OF VEHICLE-ACTUATED SIGNALS: 2. TWO-WAY STREETS

by G. F. Newell; E. E. Osuna

Published in *Transportation Science*
v3 n2 p99-125 (May 1969) 9 refs

A vehicle-actuated signal at the intersection of two two-way streets (four way intersection) at which there is no turning traffic is analyzed. If the flows in opposite direction on the two-way streets are nearly equal and the intersection is nearly saturated, then it is very inefficient for a vehicle-actuated signal to hold green until the last of the two discharging queues has vanished. Comparisons are made with fixed cycle signals.

Search terms: Traffic actuated signals*; Two way traffic*; Queueing theory*; Intersection; Fixed time traffic signals*; Mathematical analysis*; Traffic flow

HS-810 085 Fld. 4/7; 1/3

A SYSTEMS APPROACH TO SAFE MOTORING

by Catherine D. August

National Highway Safety Bureau,
Washington, D.C.

1968 19p

Application of systems analysis to the highway crash problem is still in its infancy and cannot be utilized to its full potential without better cost and accident data. Steps involved would be analysis of the crash problem and possible solutions, development of mathematical models to determine effectiveness of solutions, and decision making based on cost effect-

iveness.

Search terms: Systems analysis; Highway safety; Driver-vehicle interface; Mathematical models; Decision making*; Motor vehicle accidents; Accident research; Costs; Crash phase; Pre-crash phase; Post-crash phase; Safety standards; Accident data

AVAILABILITY: Corporate author

HS-800 162 Fld. 5/18; 4/7

VEHICLE HANDLING, ACCELERATION, AND SPEED MAINTENANCE. FINAL REPORT: TECHNICAL VOLUME

by A. D. St. John; W. D. Glauz

Midwest Research Inst., Kansas City,
Mo.

27 Jun 1969 217p 40 refs
Contract FH-11-6908

Rept. for the period 25 Jun 1968
to 27 Jun 1969. See also Executive
Summary, HS-800 163.

Although it is a common conception that too much speed is dangerous, it is also believed that too little speed may play a dominant role in many accidents. The primary goal of this study was to provide data from which minimum acceleration and speed maintenance standards for passenger vehicles and light trucks can be written. Intermediate goals were: to develop mathematical models which relate to the acceleration and speed maintenance capabilities of vehicles to highway service and safety in a quantitative fashion; to obtain the data necessary to implement the models, to determine the acceleration and speed maintenance capabilities suitable for inclusion in safety standards.

Search terms: Acceleration (physics); Speed; Mathematical models; Trucks; Automobiles; Trailers; Safety standards; Accident causes; Passing (driving); Merging traffic; Lane changing; Loads (forces); Motor vehicle performance; Computers; Speed control; Speed limits

AVAILABILITY: CFSTI

4/7 Mathematical Sciences (Cont.)

HS-800 163 Fld. 5/18; 4/7

VEHICLE HANDLING, ACCELERATION, AND SPEED MAINTENANCE. FINAL REPORT: EXECUTIVE SUMMARY

by A. D. St. John; W. D. Glauz

Midwest Research Inst., Kansas City, Mo.

27 Jun 1969 21p
Contract FH-11-6908

Rept. for the period 25 Jun 1968 to 27 Jun 1969. See also Technical volume, HS-800 162.

Summarizes the study to provide data from which minimum acceleration and speed maintenance standards can be written. Data accumulated through mathematical modeling show that acceleration capabilities do not play a significant role in lane changing but are important in merging from sub-standard entrances. Recommendations for standards covering automobiles and light trucks are made.

Search terms: Acceleration (physics); Speed; Mathematical models; Trucks; Automobiles; Trailers; Safety standards; Accident causes; Passing (driving); Merging traffic; Lane changing; Loads (forces); Motor vehicle performance; Computers; Speed limits; Speed control

AVAILABILITY: CFSTI

HS-006 118 Fld. 3/4; 4/7

COMPUTER MODEL OF CAR-DRIVER SEEN AS NEW WAY TO STUDY INTERSECTION SAFETY

by Edwin A. Kidd

Published in *Transportation Research Review* (First/Second Quarter 1969) p1-3

An instrumented car which can be driven in actual traffic situations was developed by Cornell Aeronautical Laboratory, Inc., to learn more about driver behavior at intersections. The theoretical model numerically describes in detail the driver's perceptual, decision-making, and response processes as he approaches, passes through and leaves an inter-

section controlled by various devices, and can predict intersection collisions. Factors affecting driver-vehicle behavior are also included. The greatest value of the computer model will lie in its utility as a tool for analyzing driver-vehicle-environment interactions in general.

Search terms: Computerized simulation; Intersections; Driver-vehicle interface; Mathematical models; Driver behavior; Careless driving; Environmental factors; Driving simulation; Gap acceptance*

HS-006 131 Fld. 4/7; 3/4

MATHEMATICAL BIOLOGY OF LEARNING TO DRIVE AN AUTOMOBILE

by N. Rashevsky

Published in *Bulletin of Mathematical Biophysics* v25 p51-8 (1963) 10 refs

Discusses a driver's responses to stimuli when making small corrective turns to the right or to the left as the car comes too close to the edges of a lane. The problem can be reduced to a learning situation. The safe speed of a driver can be shown to depend on his total driving experience as well as on his psychophysical parameters.

Search terms: Driver behavior; Traffic lanes; Learning; Turning (direction change); Driving tasks; Reactions (physiology); Biomathematics*; Mathematical analysis*; Driving experience*; Speed; Psychological factors; Decision making*

HS-006 132 Fld. 4/7; 3/4

MATHEMATICAL BIOLOGY OF AUTOMOBILE DRIVING. 1. THE SHAPE OF THE TRACKING CURVE ON AN EMPTY STRAIGHT ROAD

by N. Rashevsky

Published in *Bulletin of Mathematical Biophysics* v26 p327-32 (1964) 10 refs

The keeping of the car close to the center of the lane is a problem of psychophysical discrimination between two conflicting stimuli. The conclusion derived is that a relation must exist between the threshold of discrimination, the sensitivity coefficient of the driver to changes in the distance between the car and the

edge of the lane, and the width of the lane. General expressions are derived which characterize the stochastic nature of the tracking curve.

Search terms: Driver behavior; Traffic lanes; Driving tasks; Psychological factors; Tracking curves*; Stochastic processes*; Biomathematics*; Mathematical analysis*; Reactions (physiology); Decision making*

HS-006 175 Fld. 2/9; 4/7

SIMULATION OF TWO-WAY TRAFFIC ON AN ISOLATED TWO-LANE ROAD

by Paul Wernshuis

Published in *Transportation Research* v1 n1 p75-83 (May 1967)

One of the open problems in traffic flow theory is to describe the flow of two-way traffic on a two-lane road. A computer simulation has been developed in which the behavior of individual cars is modeled directly. This paper describes this simulation and presents some numerical results obtained with it.

Search terms: Computerized simulation; Traffic dynamics; Traffic flow; Speed patterns; Two lane highways; Traffic density; Traffic simulation; Mathematical analysis*

HS-006 198 Fld. 4/3; 4/7

ANALYSIS OF THE ARITHMETICAL PROCEDURE IN HIGHWAY ECONOMY STUDY

by B. R. Ceniza

Published in *Australian Road Research Board Proceedings of the Conference*, Sydney, v2 pt1 p18-33 (1964)

Report no. Paper-112

Includes discussion and author's closure to discussion.

Of the three general methods used in highway economy studies—rate of return, benefit-cost ratio, and annual transportation cost—the modified annual transportation cost method appears the simplest and the one on which all the valid methods converge. An analysis of the arithmetical procedures of the various methods reveals their strengths and weakness.

4/7 Mathematical Sciences (Cont.)

HS-006-198 (Cont.)

The three methods often give differing results.

Search terms: Mathematical analysis*; Benefit cost analysis*; Highway costs; Economic analysis

HS-006 200 Fld. 4/7; 5/4

THE USE OF A MATHEMATICAL DESCRIPTION OF VEHICLE PERFORMANCE TO DETERMINE OVERTAKING TIMES AND DISTANCES

by D. C. Andreassend

Published in *Australian Road Research Board Proceedings of the Third Conference*, Sydney, v3 pt1 p518-37 (1966)

An exponential time-speed relationship is fitted to road test data to describe the overall performance of a car. This relationship can be used to determine overtaking times and distances for various relative car spacings. Two conditions are considered: when a speed limit has to be observed by the overtaking car, using limits from 30 to 60 miles per hour, and when no speed limit is observed by the overtaking car. All examples are for two cars travelling at the same speed prior to overtaking, the overtaking car then using full acceleration to perform the maneuver. Method can be used for differing car motions.

Search terms: Performance tests; Overtaking (driving); Passing (driving); Time factor; Speed limits; Following distance; Acceleration (physics); Mathematical models; Speed

HS-006 201 Fld. 4/7; 2/9

CAR FOLLOWING MODELS AND THE FUNDAMENTAL DIAGRAM OF ROAD TRAFFIC

by Louis A. Pipes

Published in *Transportation Research* v1 n1 p21-9 (May 1967) 13 refs

Reviews several types of car-following models and discusses the types of fundamental diagrams that they imply. A new model which appears to have some merit is also presented.

The driver's visual perception is examined to determine how he gauges his rate of approaching a vehicle he is following, and the model is based on the rate of change of the visual angle.

Search terms: Mathematical models; Car following*; Traffic flow; Traffic dynamics; Visual perception; Visibility; Following distance

HS-006 227 Fld. 2/9; 4/7

TRAFFIC FLOW AND BUNCHING

by R. T. Underwood

Published in *Australian Road Research* v1 n6 p8-25 (Jun 1963) 21 refs

Various traffic flow models are discussed. It is suggested that there are three distinct flow zones. Satisfactory theoretical solutions are based on an extensive queueing theory in the zone of normal flow, and based on car following theory in the zone of forced flow, the zone of unstable flow being incapable of theoretical analysis. Some results of limited bunching studies are also discussed.

Search terms: Mathematical models; Traffic flow; Traffic density; Traffic volume; Queueing theory*; Car following; Speed

HS-006 228 Fld. 2/9; 4/7

A THEORY OF THE DIFFUSION OF TRAFFIC PLATOONS

by Muriel J. Grace; Renfrey B. Potts

Published in *Operations Research* v12 n2 p255-75 (Mar-Apr 1964) 12 refs

The basic assumption of the mathematical model is a kinematical one, that the speeds of the cars in the platoon are distributed normally. The parameters of the distribution are related to a diffusion constant that measures the spreading of the platoon. For certain assumed initial conditions, analytical and numerical solutions of the model are presented and applied to the problem of the coordination of two successive traffic lights.

Search terms: Mathematical models; Traffic flow; Traffic signals; Speed patterns; Traffic volume; Traffic density; Kinematics

HS-006 229 Fld. 2/9; 4/7

ANALYSIS OF BUNCHING IN RURAL TWO-LANE TRAFFIC

by Alan J. Miller

Published in *Operations Research* v11 n2 p236-47 (Mar-Apr 1963) 5 refs

A model is proposed for the formation of bunches in rural two-lane traffic. An overtaking rate is defined and estimated from data. Formulas are derived for the rate of delay to vehicles on rural roads caused by restricted overtaking. The model is not meant for the analysis of urban traffic.

Search terms: Rural highways; Two lane highways; Mathematical models; Traffic flow patterns; Overtaking (driving); Traffic density; Variance analysis

HS-006 236 Fld. 4/7; 2/9

QUEUES

by Martin A. Leibowitz

Published in *Scientific American* v219 n2 p96-103 (Aug 1968)

Queueing theory is explained as it relates to many areas including highways and traffic density. Mathematical analysis of queues suggests ways to shorten the waiting lines.

Search terms: Queueing theory; Traffic flow; Traffic density; Traffic congestion; Mathematical analysis

HS-006 248 Fld. 5/0; 4/7; 5/18; 5/20

ENGINEERING APPROACH TO TRUCK AND TRACTOR TRAIN STABILITY

by Ingobert Schmid

Battelle Institut e.V., Frankfurt am Main (West Germany)

1968 18 refs

Includes discussion and author's closure.

A simplified analysis is made of the directional stability of vehicle combinations, such as a tractor combined with one or two semitrailers or a truck and a full trailer. Equations of motion are derived considering the influence of braking and acceleration, and a characteristic equation for traveling at constant speed is

4/7 Mathematical Sciences (Cont.)

HS-006-248 (Cont.)

obtained. The Routh criteria are examined to distinguish between stability and instability. Special attention is given to vehicle behavior during braking. A new design of fifth wheel is presented to stabilize tractor-semitrailers.

Search terms: Vehicle stability; Mathematical analysis; Braking; Trailers; Performance characteristics; Equations of motion; Acceleration (physics); Wheels; Tractor-semitrailers; Trucks; Truck-trailers; Speed patterns

AVAILABILITY: *In* Society of Automotive Engineers, HIGHWAY VEHICLE SAFETY, 1968, p166-91 (HS-006 239)

HS-006 249 Fld. 5/0; 4/7; 5/20

DIRECTIONAL CONTROL DYNAMICS OF AUTOMOBILE-TRAVEL TRAILER COMBINATIONS

by R. Thomas Bundorf

General Motors Corp., Detroit, Mich.
1968 6 refs

Includes discussion by David H. Weir, Systems Technology, Inc.

The handling behavior of an automobile towing a full-size travel trailer at high speed is studied analytically. A computer simulation of the system indicates the proper range of design and load parameters for best handling quality and illustrates the effect of some hitch design parameters. Associated analysis provides insight into factors affecting stability of automobile-trailer combinations.

Search terms: Motor vehicle handling; Computerized simulation; Mathematical models; Automobile design; Steering dynamics; Aerodynamics; Loads (forces); High speed; Trailers; Vehicle stability; Towing; Parameters

AVAILABILITY: *In* Society of Automotive Engineers, HIGHWAY VEHICLE SAFETY, 1968, p192-205 (HS-006 239)

HS-006 251 Fld. 5/0; 3/4; 4/7

VEHICLE HANDLING: MATHEMATICAL CHARACTERISTICS OF THE DRIVER

by T. B. Sheridan

Massachusetts Inst. of Tech., Cambridge

Jan 1963 25 refs
Report no. SAE-638B

Presented at SAE Automotive Engineering Congress, Detroit.

Recent mathematical descriptions of the human operator in control systems are reviewed. Available models are shown to have certain shortcomings when applied to automobile driving. It is proposed that "self-pacing" and "programmed-transient" behavior are requisite to satisfactory characterization of the driver.

Search terms: Mathematical models; Driving tasks; Driver behavior; Driving simulation; Driver-vehicle interface; Motor vehicle handling; Man machine systems; Human factors engineering; Human body simulation

AVAILABILITY: *In* Society of Automotive Engineers, HIGHWAY VEHICLE SAFETY, 1968, p268-76 (HS-006 239)

HS-006 257 Fld. 5/0; 4/7; 5/20

HANDLING CHARACTERISTICS OF TRACTOR-TRAILER COMBINATIONS

by Frederick Jindra

General Motors Corp., Detroit, Mich.
1966 13 refs
Report no. SAE-650720

Includes discussion by E. Chosy, Fruehauf Co., and Walter D. Noon, GMC Truck and Coach Div.

A simplified, linear analysis is made of the lateral motions of a tractor-trailer combination. Equations of motion are derived for the combined vehicle, and solutions of the resulting equations are obtained and discussed in terms of the steady-state and transient response to steering control.

Search terms: Mathematical analysis; Vehicle stability; Equations of motion; Steady state; Steering dynamics; Tractor-

semitrailers; Motor vehicle dynamics

AVAILABILITY: *In* Society of Automotive Engineers, HIGHWAY VEHICLE SAFETY, 1968, p482-98 (HS-006 239)

HS-006 278 Fld. 1/3; 4/7

SOME INVESTIGATIONS ON THE RELATIONSHIP BETWEEN ROAD ACCIDENTS AND ESTIMATED TRAFFIC

by S. Erlander; J. Gustavsson; E. Larusson

Stockholm Univ. (Sweden). Inst. for Forsakringsmatematik och Matematisk Statistik

1968 61p 6 refs
Report no. 29

Mathematical models were developed to study the relationship between the number of accidents and the amount of traffic for use in analyzing accident data. The day-by-day variation during 1962 in the number of injury-producing road accidents in rural areas and their relation to the daily estimated traffic in Sweden was studied. Analysis of group-mean-corrected residuals indicates that there is a correlation between successive days for accidents as well as estimated traffic. Analysis further suggested that Poisson models with two regression parameters are preferable to Poisson models with one regression parameter. Comments made on the results for accidents involving injuries are also valid for results obtained for the total number of accidents.

Search terms: Accident studies; Mathematical models; Sweden; Forecasting; Traffic volume; Accident data; Regression analysis; Accident investigation; Traffic data analysis; Variance analysis

AVAILABILITY: Corporate author

HS-006 286 Fld. 2/9; 4/7

THE USE OF THE FLUX PLOT IN TRAFFIC CONTROL

by Robert J. Wheeler; Elmer M. Tory
Published in *Traffic Quarterly* v19 n3 p369-83 (Jul 1965) 16 refs

Discusses the use of experimental volume-concentration relationships in

4/7 Mathematical Sciences (Cont.)

HS-006-286 (Cont.)

the study and prevention or limitation of kinematic waves in a number of common traffic situations: merging and diverging, flow, speed, capacity.

Search terms: Traffic flow patterns; Speed patterns; Traffic capacity; Merging traffic; Mathematical models; Traffic dynamics; Traffic density; Traffic volume; Traffic control; Traffic data analysis; Kinematics

HS-006 311 Fld. 4/7; 2/9; 3/4

CONTRIBUTION TO THE MATHEMATICAL BIOPHYSICS OF AUTOMOBILE DRIVING

by N. Rashevsky

Published in *Bulletin of Mathematical Biophysics* v23 p19-29 (1961)

Traffic in one direction on a multi-lane highway in heavy traffic is considered, and a general expression for the number of cars which pass a car travelling at a given velocity, as well as the number of cars which the given car passes, is derived for the case when the speeds of different cars are distributed in some arbitrary manner. Closed expressions are derived and discussed for a rectangular distribution. Each passing by another car or of another car is considered as a distracting stimulus which affects the reaction times of the driver. Using previously derived expressions for the safe speed as a function of reaction times, expressions for the safe average speed are derived, in terms of the volume of traffic and of the spread of the distribution of speeds.

Search terms: Passing (driving) Reaction time; Traffic volume Traffic flow; Biomathematics Speed patterns; Mathematical analysis; Driver behavior; Driving conditions; Biophysics

HS-006 360 Fld. 4/7; 5/0

MATHEMATICAL MODELING APPROACH SUGGESTED TO ASSIMILATE DATA FROM VEHICLE SAFETY RESEARCH

by Robert A. Wolf

Published in *SAE Journal* v77 n7 p40-1 (Jul 1969)

To help evaluate the effectiveness of the federal vehicle safety standards program, it is suggested that a family of mathematical models of subsystem effectiveness be created. Vehicle crash-worthiness and other factors could be subjected to cost-benefit analysis.

Search terms: Crashworthiness*; Benefit cost analysis*; Safety standards; Mathematical models

HS-006 361 Fld. 4/7; 2/9 NON-INTEGER CAR FOLLOWING MODELS

by Adolf D. May; Hartmut E. M. Keller

California Univ., Berkeley. Inst. of Transportation and Traffic Engineering

1965 38p 13 refs

This paper gives background data on microscopic and macroscopic approaches to traffic problems. The microscopic approach is sometimes referred to as the car following theory and takes as its elements individual vehicular spacing and speed. The macroscopic approach deals with traffic stream flows, densities, and average speeds. Analytical techniques for evaluating various theories on basis of experimental data are included.

Search terms: Traffic flow patterns; Mathematical models; Car following; Traffic density; Traffic dynamics; Speed patterns; Following distance; Headway; Traffic data analysis

AVAILABILITY: Corporate Author HS-006 494 Fld. 1/3; 4/7; 2/9

STUDY OF AUTOMOBILE ACCIDENTS THROUGH DIGITAL SIMULATION

by A. D. St. John

Midwest Research Inst., Kansas City, Mo.

1968 11p 8 refs

Grant PHS-AC-00106

Report no. SAE-680173

Presented at SAE's Analysis and Control of Traffic Flow Symposium, Detroit, Jan 9-10, 1968, and published in the CONFERENCE PROCEEDINGS, p10-25.

Simulation has been developed for following, overtaking, and merging on freeways. Parameters were chosen to correspond with human factor data and traffic measurements. The purpose was to study freeway accidents. Results imply that risks are taken with fairly high frequency while associated accidents occur at low frequency and require a simultaneous precipitating event. Some guides to the vulnerability of driver types and to the accident potentials of frequently occurring situations are given.

Search terms: Traffic flow; Computerized simulation; Accident causes; Car following; Merging traffic; Mathematical models; Overtaking (driving); Driver behavior; Driving tasks; Freeways; Risk taking; Driving simulation; Traffic simulation; Driver characteristics

AVAILABILITY: SAE

HS-006 504 Fld. 2/9; 4/7

A GENERAL PURPOSE DIGITAL TRAFFIC SIMULATOR

by A. M. Blum

International Business Machines Corp., Chicago, Ill.

1968 16p 9 refs
Report no. SAE-680167

Presented at SAE's Analysis and Control of Traffic Flow Symposium, Detroit, Jan 9-10, 1968, and published in the CONFERENCE PROCEEDINGS, p10-25.

The described vehicle traffic simulator is designed to facilitate analysis of traffic flow and to experiment with postulated traffic control systems. It offers a large amount of flexibility in specifying network, intersection, vehicle, and control parameters. Vehicles may change lanes, turn, change velocity, and merge. Inputs may be varied, turns may be eliminated, and vehicles may be routed through the network. The model can be used in the simulation of single intersections, arterial routes, grid networks, and throughways.

Search terms: Computerized simulation; Traffic flow; Computer programs; Intersections; Mathematical models; Digital computers;

4/7 Mathematical Sciences (Cont.)

HS-006-504 (Cont.)

Traffic simulation; Traffic control; Speed; Turning (direction change); Lane changing; Merging traffic

AVAILABILITY: SAE

HS-006 506 Fld. 2/9; 4/7

SIMULATION OF TRAFFIC AT A FOUR-WAY STOP INTERSECTION

by Paul H. Wright

Georgia Inst. of Tech., Atlanta

1968 9p 12 refs

Report no. SAE-680170

Presented at SAE's Analysis and Control of Traffic Flow Symposium, Detroit, Jan 9-10, 1968, and published in the CONFERENCE PROCEEDINGS, p44-52.

This paper reports the results of research in which a four-way stop intersection was simulated on a digital computer. Inputs to the program were based on field studies at three intersections in metropolitan Atlanta using mathematical models and Monte Carlo techniques. The simulation model was used to study effectiveness of the four-way stop at various approach volumes and turning movement combination. Results are given by graphs showing the relationship between traffic volumes and average delay, per cent delayed, and average queue length.

Search terms: Intersections; Stop signs; Computerized simulation; Traffic flow; Queueing theory; Traffic volume; Mathematical models; Turning (direction change); Digital computers; Atlanta; Monte Carlo method; Time factors; Traffic simulation

AVAILABILITY: SAE

HS-006 507 Fld. 2/9; 4/7

APPLICATION OF COMPUTER SIMULATION TO THE STUDY OF TRAFFIC SIGNAL SYSTEM OPERATION

by Frederick A. Wagner, Jr.; Daniel L. Gerlough

Planning Research Corp., Los Angeles, Calif.

1968 13p 10 refs

Contract CPR-11-2806
Report no. SAE-680168

Presented at SAE's Analysis and Control of Traffic Flow Symposium, Detroit, Jan 9-10, 1968, and published in the CONFERENCE PROCEEDINGS, p26-38.

Two digital computer simulation models of traffic operation and control have been developed—a microscopic single, signalized intersection model, and a macroscopic signalized intersection network model. The paper describes the general features of the simulation models, presents summary data pertaining to the validity of the models, and briefly reviews research results from studies of traffic signal system operation made with the models.

Search terms: Traffic flow; Computerized simulation; Mathematical models; Traffic control; Intersections; Road networks; Traffic signal networks; Fortran; Digital computers

AVAILABILITY: SAE

HS-006 522 Fld. 4/1; 4/7

ANALYSIS OF DATA ON THE CONNECTICUT SPEEDING CRACKDOWN AS A TIME-SERIES QUASI-EXPERIMENT

by Gene V. Glass

Published in *Law and Society Review* v3 n1 p55-76 (Aug 1968)

In 1955, Connecticut initiated a policy of driver license suspension for speeding in an attempt to reduce accidents. Data on traffic fatalities before and after the speeding crackdown can be regarded as a time-series quasi-experiment with some significance for the social sciences. The Connecticut data are compared with data from four nearby states. Connecticut experienced a drop in fatalities while the other states did not. The inferential techniques applied in this paper are designed to assess the statistical stability of an alteration in the course of a time-series without analyzing the causes of such alterations. There appears to be statistically reliable evidence of an abrupt diminution of traffic fatalities in the month after the crackdown.

Search terms: Accident prevention; Connecticut; Traffic law enforcement; Speed limits; Fatalities; Accident rates; Statistical analysis; Time series analysis; Safety campaigns; Driver license suspension; High speed; Accident data

HS-006 557 Fld. 2/4; 4/7

A MATHEMATICAL APPROACH TO HIGHWAY DESIGN

by Joseph Pekarsky; Justin H. Dickins

Published in *Traffic Engineering* v37 n11 p53-6 (Aug 1967) 5 refs

A method is discussed for estimating time headway mean and variance values from vehicular speed and interval spacing distributions utilizing the mathematics of expected values. The method will assure the designer of providing an adequate highway system to accommodate forecasted traffic demands.

Search terms: Headway; Speed patterns; Traffic flow patterns; Mathematical analysis; Highway design; Highway planning; Traffic estimates; Time factors

HS-006 562 Fld. 2/9; 4/7

SIMULATION OF A TRAFFIC NETWORK

by Jesse H. Katz

Published in *Communications of the ACM* v6 n8 p480-6 (Aug 1963) 5 refs

A traffic network simulator for the District of Columbia is described. In this model a traffic network is considered to consist of a set of links, each with a traffic signal associated. Links are of three types: input, feeding traffic into the network; network, carrying traffic from one intersection to another; and output, removing traffic from the network.

Search terms: Mathematical models; Intersections; Traffic signal networks; Traffic flow patterns; District of Columbia; Simulation models; Traffic simulation

HS-006 580 Fld. 3/4; 4/7

A SUBJECTIVE SCALE OF SPEED WHEN DRIVING A MOTOR VEHICLE

by G. G. Denton

4/7 Mathematical Sciences (Cont.)

HS-006-580 (Cont.)

Published in *Ergonomics* v9 n3 p203-10 (1966) 13 refs

An experiment is described which attempts to establish a subjective scale of speed such as that experienced by a driver. The subject is required to produce a speed which he thinks bears a given proportional relation to the standard speed presented. The time taken by subjects to change from one speed to another is also positively correlated with speed. A more suitable mathematical model is derived from the transformed data, from which it is possible to predict performance for sensation ratios other than those tested. Applications of the findings to the study of driver behavior, speeding offenses, and accident rates are given.

Search terms: Speed studies; Mathematical models; Time factors; Accident rates; High speed; Traffic violations; Driver skills; Motion perception; Driver performance studies

HS-800 186 Fld. 5/22; 4/7

TIRE PERFORMANCE CHARACTERISTICS AFFECTING VEHICLE RESPONSE TO STEERING AND BRAKING CONTROL INPUTS

by Howard Dugoff; Paul S. Fancher; Leonard Segel

Michigan Univ., Ann Arbor. Highway Safety Research Inst.

Aug 1969 109p 45refs

Contract FH-11-6090; NBS CST-460; PB-187 667

A theoretical study of the influence of tire-mechanics characteristics on the behavior of an automobile undergoing maneuvers requiring the tires to produce combined longitudinal and lateral forces was performed. A simulation model specifically designed to study vehicle response under skidding and near-skidding conditions was developed and mechanized on an analog computer. The simulation was applied to examine the influence on vehicle responses to various open-loop steering and brake-control inputs of variations in the values of three parameters: lateral tire stiffness, longitudinal tire stiffness, and the

coefficient of friction at the tire-road interface.

Search terms: Pneumatic tires; Tire dynamics; Motor vehicle handling; Steering (driving); Braking; Tire performance; Mathematical models; Analog computers; Computerized simulation; Tire traction; Skidding; Lateral force; Longitudinal force; Tire-road conditions

AVAILABILITY: CFSTI as PB-187 667

HS-006 664 Fld. 1/4; 4/7

ACCIDENT ANALYSIS AT RAILROAD-HIGHWAY GRADE CROSSINGS IN URBAN AREAS

by W. D. Berg; J. C. Oppenlander

Joint Highway Research Project, Lafayette, Ind.

6 May 1969 33p 10 refs
Report no. JHRP-11

Mathematical models were developed to measure the relative safety or hazard of urban grade crossings and to establish priorities for the improvement of protection. A discriminant model which expresses potential hazard as a function of protective device, average daily highway traffic, average daily train traffic, degree of effective sight distance, and roadside distractions was 74% successful. Data were collected at 295 accident locations and 281 non-accident locations in urban portions of Indiana.

Search terms: Mathematical models; Railroad grade crossings; Grade crossings (highways); Hazards; Accident analysis; Accident location; Urban areas; Indiana; Accident prevention; Forecasting; Regression analysis; Visibility; Traffic volume; Warning systems; Statistical analysis; Accident risks

AVAILABILITY: Corporate author

HS-006 666 Fld. 2/0; 4/7

METHODOLOGY FOR DETERMINING TRAFFIC SAFETY PRIORITIES: A COLLISION PREDICTION MODEL

by B. F. Goeller

Rand Corp., Santa Monica, Calif.
Feb 1969 36p 22 refs
Report no. P-3962

Presented at the nation's First Regional Highway Safety Conference, 16-17 Oct 1968, at Mississippi State Univ., and in modified form to a special seminar at Insurance Inst. for Highway Safety, Washington, D.C., 16 Jan 1969.

Decision makers need to be able to determine priorities so as to get the most safety from available resources. The preliminary safety model is broken into three natural stages: pre-accident stage, intra-accident stage, and post-accident stage. Safety activities for each stage are analyzed. Dangers, hazards, and risks are described. The vulnerability concept is basic to the pre-accident stage of the model. It deals with driver decision making and errors. The intra-accident stage of the model predicts the number of collisions expected from the vulnerabilities which have been determined, and means by which collisions may be evaded.

Search terms: Defensive driving; Systems analysis; Highway safety; Models; Traffic safety; Accident factors; Driver behavior; Driver skills; Forecasting; Accident prevention; Accident risks; Collisions (accidents); Hazards; Priorities; Pre-crash phase; Post-crash phase; Crash phase; Benefit cost analysis; Decision making

AVAILABILITY: Corporate author

HS-006 729 Fld. 2/9; 4/7

THE EFFECT OF SHORT CARS ON FLOW AND SPEED IN DOWNTOWN TRAFFIC: A SIMULATION MODEL AND SOME RESULTS

by John W. McClenahan; Howard J. Simkowitz

Published in *Transportation Science* v3 n2 p 126-39 (May 1969) 6 refs

The flow of vehicles down one lane of a straight, signalized urban street with fixed cycle traffic lights at 500-foot intervals was simulated by means of a Fortran IV computer program. A car-following model and a simple model of lead-driver behavior were used to model driver responses. Flow and speed measurements were made for levels of congestion in which queues developed at traffic lights. The simulation model was constructed to investigate the effect of vehicle length on speed and flow.

4/7 Mathematical Sciences (Cont.)

HS-006-729 (Cont.)

Results indicate that substitution of all small cars for all large cars would increase flow 70%.

Search terms: Simulation models; Traffic simulation; Traffic flow patterns; Traffic signals; Computer programs; Fortran; Vehicle size; Small cars; Traffic congestion; Car following; Driver behavior; Speed patterns; Queueing theory; Central business districts; Compact cars

HS-006 751 Fld. 3/6; 4/7

FACTOR ANALYSIS OF DRIVER RECORD

by David M. Harrington

Published in *Traffic Safety & Research Review* v12 n3 p81-7 (Sep 1968) 10 refs

Driver record data including accidents, violations, license restrictions, and age were collected for 43,000 male and 30,000 female drivers. Factor analyses revealed three driver record factors: moving violation, descriptive of actual driving behavior and types of errors made; non-moving violation, reflecting condition of vehicle and technical violations of the law, rather than driving behavior; and paired accident-conviction, reflecting legal responsibility for an accident. Results confirm most researchers' idea of the structure of accident and violation data, showing that accidents are most closely related to the moving violation factor.

Search terms: Driver records; Driver behavior; Traffic violations; Defective vehicles; Accident factors;

HS-006 757 Fld. 4/7; 2/9

MATHEMATICAL THEORY OF AUTOMOBILE TRAFFIC

by Denos C. Gazis

Published in *Science* v157 n3786 p273-81 (21 Jul 1967) 80 refs

Improved understanding and control of traffic flow is a fast-growing area of scientific research. Traffic flow models, especially car following models, are discussed. Traffic conflicts, applications of statistics to this problem, traffic control studies, and

traffic networks are described.

Search terms: Bibliographies; Mathematical analysis; Traffic flow; Car following; Statistical analysis; Traffic control; Traffic research; Traffic systems; Traffic engineering; Traffic characteristics; Simulation models; Mathematical models..

HS-006 758 Fld. 4/7; 2/9

SOME APPLICATIONS OF SAMPLE SURVEY AND EXPERIMENTAL DESIGN TO ROAD TRAFFIC

by Alan J. Miller

New South Wales Univ., Sidney (Australia). Inst. of Highway and Traffic Research

(1962) 15p 7 refs

The methods of sample survey design are more relevant to road traffic than the design of experiments. Various surveys and experiments are described, including before-and-after studies, the Birmingham dipped headlights campaign, a speed limit study, a journey time study using Graeco-Latin square design, sample surveys of traffic data, vehicle counting census methods. The work discussed took place in Great Britain and Australia.

Search terms: Traffic engineering; Statistical analysis; Surveys; Travel patterns; Traffic flow patterns; Speed limits; Dimmed headlights; Traffic data analysis; Traffic counters; Great Britain; Australia; Travel time

AVAILABILITY: Corporate author

HS-006 772 Fld. 5/22; 4/7

PREDICTION OF WHEEL PERFORMANCE ON SOFT AND RIGID GROUND

by Dieter Schuring

Cornell Aeronautical Lab., Inc., Buffalo, N.Y.

19 p 19 refs
Contract DAHCO4-67-C-0005

Two different approaches are presented for predicting wheel performance on rigid and on soft soils: (1) a mathematical simulation of wheel deformation caused by rigid obstacles; (2) a discussion of the coefficient of rolling resistance for

the wheel on soft soil. The ultimate goal is a theory which would predict any wheel response on any type terrain.

Search terms: Tire-road conditions; Soil structure; Rolling resistance; Tire dynamics; Wheel design; Forecasting; Mathematical models; Laboratory tests

AVAILABILITY: Corporate author

HS-006 179 Fld. 2/9; 4/7

A COMPARISON OF MOTORIST DELAYS FOR DIFFERENT MERGING STRATEGIES

by D. R. McNeil; J. T. Smith

Published in *Transportation Science* v3 n3 p239-54 (Aug 1969)

23 refs

Contract FH-11-6658

Compares motorist delays in the case of two merging strategies that have been widely discussed: the Miller model and the Weiss and Maradudin model. Results for both models may be obtained easily, using the results of queueing theory. Reduction in the delay achieved by inserting a traffic island between two streams of major road traffic is illustrated.

Search terms: Mathematical models; Traffic flow; Merging traffic; Queueing theory; Medians (dividers); Time factors*; Traffic data analysis

4/8 TRANSPORTATION SYSTEMS

HS-004 308 4/8

CONGESTION ANALYSIS--SPEED DELAY STUDY, US99W--I-5, PORTLAND OREGON Oregon. State Highway Dept., Salem. Traffic Engineering Div.

Dec 1965 15 p.

AVAILABILITY: From corporate author

Study shows improvements in traffic congestion, vehicle travel time, and accident records due to a freeway relieving near capacity traffic conditions on a highway. "Before" and "after" conditions and maps of the system are given.

HS-004 388 Fld. 4/8, 2/4

AN ANALYSIS OF SOME TRAFFIC PROBLEMS ON THE CAMPUS OF THE UNIVERSITY OF CALIFORNIA by Robert Brenner Institute of Transportation and Traffic Engineering, Univ. of California, Los Angeles

May 1963 27p map

Serious safety and congestion problems will result from opening of Ward Memorial Freeway, to which there is no access except through center of campus. A belt road proposed as temporary solution until freeway is extended beyond campus. Large aerial map of campus included.

Search terms: Access control, Belt highways, Freeway planning, Freeways, Highway construction, Highway planning, Highway safety, Traffic congestion, Traffic safety

AVAILABILITY: NHSB

HS-004 389 Fld. 4/8

DIAGNOSTIC VERSUS PREVENTATIVE URBAN TRANSPORTATION PLANNING by Robert Brenner California Univ., Los Angeles. Dept. of Engineering

17 Jun 1965 7p Presented at SPUR Symposium, "San Francisco's Transportation Dilemma," San Francisco, Calif.

The preventative approach seeks to prevent emergence of situations which will have to be corrected; the

diagnostic approach tries to correct situations which already exist. Urban transportation planning is interwoven in regional land-use planning. It would be valuable to achieve a balance between expenditures which will prevent problems and those which are meant to correct problems, such as street improvements. Discusses San Francisco mass transit system planning.

Search terms: Cost data, Highway planning, Land use, Mass transportation, Regional planning, Transportation planning, Urban planning

AVAILABILITY: NHSB

4/8 TRANSPORTATION SYSTEMS

HS-004 596 Fld. 4/8

AN APPROACH FOR EVALUATING THE SUITABILITY OF TRANSPORTATION DESIGN CONCEPTS TO MEET THE NEEDS OF A MAJOR ACTIVITY CENTER by David N. Goss, Daryl J. Rinehart Battelle Memorial Inst., Columbus, Ohio

13p

Report no. SAE-690037 Presented at International Automotive Engineering Congress, Detroit, Mich., 13-17 Jan 1969

A comprehensive approach

is presented for analyzing the interrelationships among transportation technology, place, and people in major urban activity centers. Transportation system designers must develop concepts which are responsive to urban travel needs and compatible with land use environments. Examples of current deficiencies in downtown transportation are presented to stimulate awareness of the role of transportation in achieving a viable downtown area and the types of system necessary to achieve it.

Search terms: Transportation planning, Urban planning, Land use, Central business districts, Urban areas

AVAILABILITY: From SAE

HS-004 597 Fld. 4/8

THE INTERSTATE COMMERCE COMMISSION AND EMERGENCY TRANSPORTATION PREPAREDNESS by Paul J. Tierney

Published in Transportation Proceedings p2-5 (Sep 1968)

Outlines planning for national defense emergencies, including railroads, highway carriers, and water carriers.

Search terms: Transportation planning, Highway transportation, Railroads, Emergency services, National defense*, Interstate Commerce Commission*, Water transportation

HS-004 598 Fld. 4/8

SOCIAL AND ECONOMIC FACTORS AFFECTING CURRENT AND FUTURE TRANSPORTATION SYSTEMS by K. Philip Rahbany Texas A and M Univ., College Station

8p

Report no. SAE-690042 Presented at International Automotive Engineering Congress, Detroit, Mich., 13-17 Jan 1969

4/8 Transportation Systems (Cont.)

HS-004-598 (Cont.)

The readiness with which a transportation mode can be cashed-in is a critical aspect of transportation demand and therefore the design of transportation systems. This factor and the use of transport vehicles for non-transport functions and expanded public sector participation in determining consumer preferences are significant influences on present and future transportation. Includes discussion of safety, air pollution, urban land use, and other issues which presently influence transportation planning.

Search terms: Air pollution, Highway safety, Transportation planning, Land use, Economic factors, Public opinion, Transportation patterns, Urban planning, Sociological aspects

AVAILABILITY: From SAE

HS-004 599 Fld. 4/8

TRANSPORTATION TECHNOLOGY AND THE PROBLEM OF THE CITY
by John B. Rae

Published in Traffic Quarterly v22 n2 p299-314 (Jul 1968)

There is evidence that a decentralized metropolis makes optimum use of resources in transportation technology as an instrument for dealing with urban problems. Overhauling of conflicting and overlapping local governments is also needed. Modern communication and data processing techniques render travel to communicate unnecessary. Discusses the problems of traffic congestion in central cities, which has contributed to decentralization of business and in-

dustry and resulted in decay of downtown areas.

Search terms: Local government, Transportation planning, Transportation patterns, Traffic congestion, Urban areas, Metropolitan areas, Urban planning, Land use, Urban geography*, Communication systems*

HS-004 600 Fld. 5/4,4/8

AN ANSWER TO URBAN TRAFFIC GLUT...THE ADAPTABLE URBOMOBILE
Anonymous

Published in Transportation Research Review p6-8 (3rd-4th Q 1968)

Outlines a concept being developed by Cornell Aeronautical Laboratory as an alternative to rapid transit. The urbomobile system would use a small fume-free electric car able to run either on regular streets or tracked guideways 8 feet wide. Vehicles could either be privately owned or publicly owned, and could be continuously recirculated. They could be operated automatically without driving ability. Urbomobile could be made in sizes for 4 to 14 passengers. Six other new transit concepts are briefly discussed.

Search terms: Rapid transit vehicles, Electric vehicles, Tracks*, Automatically guided automobiles, Automatic highways, Driver skills, Public transportation, Urban planning, Traffic congestion, Urbomobiles*, Road-rail vehicles*

HS-004 656 Fld. 4/8

CASE STUDIES OF SEVEN NEW SYSTEMS OF URBAN TRANSPORTATION
by Eugene T. Carty, Albert J. Sobej, General Motors Research Labs., Warren, Mich.

13-17 Jan 1969 18p
Report no. SAE-690038

Presented at International Automotive Engineering Congress, Detroit, Mich., Prepared in cooperation with Sverdrup and Parcel and Associates

Seven new systems are examined, including their technical feasibility, cost, and social acceptability. They are: 1. Network cab system, using air cushion vehicles with electric motors, travelling on guideways. 2. Metro-mode bus, with buses using a private or restricted right-of-way for high speed trips. 3. Rail pallet system, loading autos and their occupants onto rail vehicles for high speed transport. 4. Automated highway, using buried cables, electronic equipment, and computers. 5. Multimodal capsule, using small passenger compartments loaded onto some other vehicle. 6. Bi-modal system, using electric buses. 7. Demand bus, a small vehicle dispatched to pick-up sites where coin-operated call boxes had been activated. Some of these systems would interface with present transportation modes..

Search terms: Transportation planning, Electric automobiles, Buses (vehicles), Computers, Automatic highways, Air cushion vehicles*, Railroads, Costs*, Socio-economic data, Electronic traffic control

AVAILABILITY: From SAE

HS-004 662 Fld. 5/6,4/8

APPROACHES TO DEALING WITH MOTOR VEHICLE AIR POLLUTION: REPORT OF THE SUBPANEL ON TRANSPORTATION SYSTEM REQUIREMENTS OF THE PANEL ON ELECTRICALLY POWERED VEHICLES by Edward H. Blum Rand Corp., Santa Monica, Calif.

Dec 1967 57p 328refs
Report no. P-3776. AD-665 105
Originally published by GPO as part of "The Automobile and Air Pollution: A Program for Pro-

4/8 Transportation Systems (Cont.)

HS-004-662 (Cont.)

gress--Part II"

Develops systematic structure and approach to the features and problems of vehicular pollution using the remainder of the report to explore these structures, the related uncertainties (biological-medical effects of pollutants; micro-meteorology). Suggests additional problem areas for research.

Search terms: Air pollution control, Exhaust emissions, Mathematical models, Bibliographies, Benefit cost analysis*, Cost data, Electric automobiles, Mass transportation, Urbmobiles*, Sociological aspects, Motor vehicle use studies, Federal-State relationships*, United States Government, State government

AVAILABILITY: From CFSTI as AD-665 105

HS-004 703 Fld. 4/8

BUSWAYS--RAPID TRANSIT FOR AN INTERMEDIATE-SIZED METROPOLITAN AREA
by Joseph C. Carradino
Simpson and Curtin, Philadelphia, Pa.

13-17 Jan 1969 9p
Report no. SAE-690040
Presented at International Automotive Engineering Congress, Detroit, Mich.

A busways system consists of a network of buses which circulate through residential communities for local pickup, then speed over reserved trunk lines to the focal point of the community, generally the central business district. System is fast, comfortable, and cheaper than most other high performance rapid transit systems. It may well be the system of the future for intermediate-sized areas with pro-

jected 1980 populations of less than two million. Even in large metropolitan areas planning other forms of rapid transit, busways would serve as an interim measure to alleviate commuter congestion. Busways would use railroad rights-of-way, elevated and underground roads, and existing streets.

Search terms: Right-of-way (land)*, Elevated highways, Buses (vehicles), Rapid transit vehicles, Traffic congestion, Central business districts, Transportation planning, Urban planning, Busways*

HS-004 779 Fld. 4/8

COMPARATIVE ANALYSIS OF PUBLIC TRANSPORTATION FOR SMALL AND MEDIUM SIZE CITIES
by Howard R. Ross,
W. Robert Hamilton
Sverdrup and Parcel and Associates

13-17 Jan 1969 8p 7 refs
Report no. SAE-690041

Presented at the International Automotive Engineering Contress, Detroit, Mich.

Compares transportation systems, on the basis of cost of installation and operation as well as social factors. Believes the personal rapid transit system (Teletrans, Urbomobile, Rail Taxi, etc.) is the correct approach for small and medium sized cities.

Search terms: Urban transportation, Transportation systems, Cost data, Personal rapid transit vehicles, Monorails*, Buses (vehicles), Guide-ways*, Automobiles, Urbomobiles*, Right-of-way (land)*

AVAILABILITY: From SAE

HS-004 836 Fld. 4/8,1/3

LOGIC AND ROAD SAFETY RESEARCH by Anthony Peranio

Published in Traffic Quarterly v23 n1 p123-31 (Jan 1969)

Road safety is dependent upon a complex of factors, one of which is the human user of the roads. Looking at the problem logically leads to an attempt to improve safety by influencing human behavior. On the assumption that accidents must be due to human error, much research has been done to detect accident proneness, reckless drivers, and other risks and causes of accidents. This paper suggests that a safety barrier has been reached and that drivers, highways, and cars cannot be made much safer; that drastic changes may have to be made in the whole transportation system to cut the accident toll any further.

Search terms: Accident causes, Accident research, Highway safety, Accident proneness, Accident risks, Driver behavior, Reckless driving, Transportation planning, Safety research

HS-004 887 Fld. 4/8,2/9

THE AUTOMATIC HIGHWAY by George R. Bierman, John L. Hain

Published in Mechanical Engineering v90 n7 p18-21 (Jul 1968)

Incorporates privately owned vehicle into a controlled mass transit system, Urban Highway Mass-Transit (UHMT). Vehicle must be electric to accomodate control of vehicle and roadway speed, steering control, entrance and exit procedures, automatic checkout, etc.

Search terms: Automatically guided automobiles, Electric automobiles, Automatic highways, Mass transportation, Commuting patterns, Electronic traffic control, Controlled access highways

**4/8 Transportation Systems
(Cont.)**

HS-004 888 Fld. 4/8

THE STATUS OF TRANSPORTATION ENGINEERING CURRICULA/UNIVERSITY OF CALIFORNIA, BERKELEY by D. M. Finch California Univ., Berkeley

13-17 Jan 1969 5p
Report no. SAE-690083
Presented at International
Automotive Engineering
Congress, Detroit, Mich.

University is offering graduate courses in transportation engineering leading to masters and doctoral degrees. Admission requirements, courses offered, research facilities, financial aid, and other relevant information are discussed. Included is a discussion of the Institute of Transportation and Traffic Engineering at the university.

Search terms: Transportation engineering, California Univ. Institute of Transportation and Traffic Engineering*, Curricula*

AVAILABILITY: From SAE

HS-004 978 Fld. 4/8, 5/4, 2/4

TOMORROW'S TRANSPORTATION: NEW SYSTEMS FOR THE URBAN FUTURE
Urban Transportation Administration, Washington, D. C. Office of Metropolitan Development

May 1968 114p 39 refs
Report no. M/MP-62

Offers a transportation research and development program which could require \$980 million in total funding. Systems with potential are: Dial-a-Bus; Personal Rapid Transit; Dual Mode Vehicle Systems; Automated Dual Mode Bus; Ballet or Ferry Systems using high speed guideways.

Search terms: Transportation Planning, Automatically guided automobiles, Mass transportation, Rapid

Transit Railways, Electronic Traffic Control, Urban planning, Sociological aspects, Federal aid, Motor vehicle design

AVAILABILITY: From GPO \$1.75

HS-004 991 Fld. 5/6, 4/8

ABATEMENT OF ATMOSPHERIC POLLUTION BY URBAN PLANNING by Ahangjit Mukherji

Published in Traffic Quarterly
v22 n2 p433-50 (Jul 1968)
8 refs

Planning tends to concentrate on expressways and parking areas to take care of the increasing motor vehicle population, so that the air pollution problem becomes worse. Excessive use of motor cars as the principal means of transportation has direct relationship to the deterioration of health and welfare of the urban communities. A hierarchy of transportation network with a balanced use of motor vehicles is needed, with more emphasis on public transportation. Los Angeles is used as example of advanced urban sprawl and air pollution.

Search terms: Air pollution, Air pollution control, Urban planning, Smog, Traffic planning, Transportation planning, Public transportation, Metropolitan areas, Highway planning, Parking lots, Motor vehicles, Los Angeles*

HS-005 031 Fld. 4/8

THE SOCIO-ECONOMIC IMPACT OF THE CAPITAL BELTWAY ON NORTHERN VIRGINIA
by Julia A. Connally
Virginia Univ., Charlottesville. Bureau of Population and Economic Research

1968 154p
Prepared in cooperation with Virginia Dept. of Highways and Bureau of Public Roads.

Investigates and assesses the impact of the Capital Beltway on Northern Virginia.

Brings together data on social and economic indicators, methodology employed, analysis and conclusions reached.

Search terms: Belt highways, Socioeconomic data, Industries, Commuting patterns, Population density, Traffic patterns, Transportation planning, Virginia*

AVAILABILITY: From corporate author

HS-005 057 Fld. 2/4, 5/4, 4/8

THE CENTURY EXPRESSWAY CONCEPT

by Robert A. Wolf

Cornell Aeronautical Lab., Inc., Buffalo, N.Y.

20 Oct 1965 7p

Presented at Workshop Session, Institute of Traffic Engineers, 35th Annual Meeting, Boston, Mass.

Expressways capable of accommodating 100 mph cruising speeds are technically feasible for 1980. Special type autos, "Century Cruisers", specially licensed drivers, accident reducing and injury alleviating features for both vehicle and highway must be incorporated in planning.

Search terms: Automobile design, Controlled access highways, Highway design, High speed, Driver licensing, Safety design, Experimental vehicles*

AVAILABILITY: Corporate author

HS-005 075 Fld. 4/8, 2/2

CONTINUING URBAN TRANSPORTATION STUDIES

by Austin E. Brant, Jr., Dana E. Low
Published in *Traffic Quarterly* v23 n2 p207-29 (Apr 1969)

Traffic planning, to comply with federal requirements, must be a continual process. This study presents the procedures required for the initial updating and for continuing process: street inventory, capacity studies, accident studies, travel forecasting, reporting.

4/8 Transportation Systems (Cont.)

HS-005-075 (Cont.)

Search terms: Urban areas, Transportation planning, Accident location

HS-005 076 Fld. 4/8

A RAPID METHOD FOR THE SYNTHESIS OF URBAN TRAFFIC

by R. Hodgen, M. Watson

Published in *Traffic Engineering & Control* v10 n4 p169-73 (Aug 1968)

To estimate future travel patterns, a program known as SYNTTH was developed. Written for the evaluation of alternative courses, SYNTTH is also suited to situations of uncertainty (as in a new town—proposed new development exceeds existing development).

Search terms: Urban areas, Computerized simulation, Transportation planning

HS-005 077 Fld. 4/8

RESEARCH NEEDS IN HIGHWAY TRANSPORTATION

Tallamy (Bertram D.) Associates, Washington, D.C. and Smith (Wilbur) and Associates, New Haven, Conn.

1968 78p 150 refs
Report no. NCHRP-55 NAS-NRC-Pub-1589

Research sponsored by AASHO and BPR.

Transportation systems and related research needs, and recognized national transportation research goals are discussed. A method of assigning priorities and funding requirements for proposed research projects is presented. Highway research projects grouped by problem area are appended.

Search terms: Transportation planning, Freeways, Costs, Safety engineering, Highway research

AVAILABILITY: HRB

HS-005 078 Fld. 4/8

THE ROLE OF THE HIGHWAY IN URBAN DEVELOPMENT

by D. Grant Mickle

Published in *Traffic Engineering* v36 n7 p32-6 (Apr 1966)

Six propositions are presented: highway planning must be part of the total urban planning process; development of a highway system within a regional framework must be integrated with land use patterns; urban highway design must be linked to design planning for the total urban region and related to aesthetic and community values and socioeconomic factors; traffic planning must integrate street system with land use and transportation developments; financing must be sufficient; and more research in the interrelationship of modes of transportation is needed.

Search terms: Urban planning, Transportation planning

HS-005 079 Fld. 4/8, 2/9

TECHNICAL PROBLEMS OF URBAN TRAFFIC CONTROL

by D. J. Lyons

Published in *Traffic Engineering & Control* v9 n1 p31-4, 39 (May 1967)
5 refs

The degree of congestion and delay in an urban road network depends on the traffic demand in relation to the traffic capacity. Control is possible through: parking restrictions, road pricing, diversion and advisory signalling, construction of new roads, smaller cars for cities, direct control of traffic movement (traffic signals).

Search terms: Highway design, Urban areas, Traffic planning, Traffic signal networks*

HS-005 102 Fld. 2/4; 5/4, 4/8

DESIGNING THE 100 MPH EXPRESSWAY

Anonymous

Published in *Highway Research News* n34 p48-52 (Winter 1969)

Reprinted from *Research Trends* (Summer 1968).

Highway transportation systems geared to sustained speeds of 100 mph are possible. This article describes one such system, the Century Expressway. A computerized surveillance-and-control system will permit specially licensed motorists to enter.

Design specifications for the special car, the Century Cruiser, are also included.

Search terms: Experimental vehicles, Controlled access highways, Century Cruisers*, Century Expressways*, Highway design, Automobile design, High speed, Safety design, Driver licensing

HS-005 107 Fld. 2/9, 4/8

COMPARATIVE ANALYSIS OF TRAFFIC ASSIGNMENT TECHNIQUES WITH ACTUAL HIGHWAY USE

by Matthew J. Huber, Harvey B. Boutwell, David K. Whiteford

Yale Univ., New Haven, Conn.
Bureau of Highway Traffic

1968 95p 36 refs
Report no. NCHRP-58; NAS-NRC-Pub-1712

Research sponsored by AASHO in cooperation with BPR.

Study was undertaken to compare accuracy of predicted use with actual use and to prepare a plan for further testing of forecasting and assignment procedures, including development of measures of change in traffic patterns of a network brought about by a new facility.

Search terms: Traffic data analysis, Statistical analysis, Traffic flow patterns, Highway usage, Forecasting, Road networks*, Highway planning, Connecticut*

AVAILABILITY: HRB \$3.60

HS-005 177 Fld. 4/8

TRAFFIC AND TRANSPORTATION IN THE U.S.A.

by F. G. Holliday

Published in *Journal of the Institution of Highway Engineers* v14 n3 p39-46 (Mar 1967)

Contrasts American and British practice in traffic and transportation engineering, including traffic management, urban freeway surveillance, computer usage, highway safety, public transportation, the Interstate highway system, urban transportation studies, and the decline of city centers.

4/8 Transportation Systems (Cont.)

HS-005-117 (Cont.)

Search terms: Highway safety; Public transportation; Computers; Great Britain*; Transportation systems; United States*; Central business districts; Traffic engineering; Transportation engineering; Freeways; Urban geography*; Traffic control

HS-005 243 Fld. 4/8

A SOVIET SOLUTION FOR CITY TRAFFIC CONGESTION

by Alexei Pryakhin

Published in *Traffic Engineering and Control* v9 n1 p43-6 (May 1967)

Describes the planning of Soviet towns, streets, and roads, on the assumption of a level of 150 cars per 1,000 inhabitants. Radial roads outside cities are planned to prevent traffic congestion in city centers. Patterns for road and street networks are discussed.

Search terms: Belt highways; Traffic circles; Traffic congestion; Peak hour traffic; Road networks*; Transportation patterns; Traffic planning; Streets; Central business districts; Urban planning; USSR

HS-005 244 Fld. 4/8

SPLITTING HEADACHES

by Thomas D. Schocken

Published in *Traffic Quarterly* v22 n2 p389-96 (Jul 1968)

Reviews the 1966 publication, "MODAL SPLIT, Documentation of Nine Methods for Estimating Transit Usage." Outlines the problems in planning mass transit and criticizes the modal split method for lacking a standard error of estimate in outputs of models.

Search terms: Mass transportation; Transportation planning; Simulation models; Public transportation; Motor vehicle use studies; Urban planning

HS-005 287 Fld. 4/8

HIGHWAY RESEARCH & DEVELOPMENT STUDIES

OPMENT STUDIES USING FEDERAL-AID RESEARCH AND PLANNING FUNDS. FISCAL YEAR 1969 OR CALENDAR YEAR 1968, IN PROGRESS AS OF JULY 1, 1968

Bureau of Public Roads, Washington, D.C.

Nov 1968 173p

Activities in highway transportation are grouped under seven broad goals: definition of underlying requirements for highway transport; analytic definition of complex traffic movements; analysis of essential components of highway transport; development of methods for reliable forecasting of demand for highway transport; development of methods for increased capacity, control, and safety in traffic movement; development of techniques for more precise structural design and incorporation of new materials and structural concepts; and development and application of new technology to location, design, construction, and maintenance processes. These goals are further subdivided into projects and tasks. Entries are arranged by goal and project and by state. Availability of studies from the Clearinghouse (CFSTI) is also given.

Search terms: Highway safety; Highway research; Highway design; Federal aid; State government; Highway construction; Highway maintenance; Highway planning; Transportation planning; Traffic planning; Traffic control; Forecasting; Highway usage; Traffic flow; Traffic capacity

AVAILABILITY: GPO \$1.50

HS-005 288 Fld. 4/8

TRANSPORTATION AND TOMORROW'S CITIES

American Automobile Assoc., Washington, D.C.

Jan 1969 24p 11 refs

This overview of the urban traffic situation considers: trip patterns for the emerging city; the role of freeways; financing expressways; the role of the traffic engineer, and the freeway versus transit controversy. The contribution to be made by rail transit is critically compared with that of the freeway.

Search terms: Transportation planning; Urban areas; Controlled access highways; Mass transportation; Rapid transit railways; Costs*; Suburban areas; Travel patterns; Freeways; Traffic engineering; Highway taxes

AVAILABILITY: Corporate author

HS-055 289 Fld. 4/8

AN ADVANCED DOOR-TO-DOOR SYSTEM FOR INTER-URBAN TRANSPORTATION

by Richard K. Boyd; Steven E. Plotkin; Kenneth K. Tang

TRW Systems Group, Redondo Beach, Calif.

13-17 Jan 1969 11p 2 refs
Report no. SAE-690170

Presented at International Automotive Engineering Congress, Detroit, Mich.

A possible future transportation system is described wherein autos are known today are used in conjunction with other major subsystems to provide high speed, high capacity, and high safety interurban transportation. Several advanced subsystems are incorporated, including a deterministic control system, a functional train headway policy, high speed switching, and a unique station layout. System would use guideways on which 150 mph speed could be achieved.

Search terms: Transportation planning; Guideways*; High speed; Traffic capacity; Safety engineering; Automatic control; Automatic highways; Railroads; Control equipment; Stations; Motor vehicle control; Headway*; Palletizing*

AVAILABILITY: SAE

HS-005 290 Fld. 4/8

CLEVELAND TRANSIT AND PARKING OPERATIONS

by George Ihnat

Cleveland Transit System, Ohio

Published in *Highway Research Circular* n91 p1-28 (Jan 1969)

Twelve years of experience have shown a wide demand for extensive parking lots and provision for drop-off and pick-up space at outlying rapid transit stations. These facilities have benefited Cleveland by reducing

4/8 Transportation Systems (Cont.)

HS-005-290 (Cont.)

rush hour traffic congestion and need for downtown parking. Estimates are given of the numbers of autos which would be "intercepted" by extension of this system.

Search terms: Parking lots; Mass transportation; Parking; Ohio*; Peak hour traffic; Traffic congestion; Central business districts; Passenger terminals*

HS-005 350 Fld. 2/9; 4/8

STABILITY AND STEADY STATE OF TRAFFIC PATTERNS. INTRODUCTION TO TRAFFIC SCIENCE, 2.

by W. R. Blunden

Published in *Traffic Engineering and Control* v8 n11 p677-80 (Mar 1967) 11 refs

Discusses the role of travel time in governing the performance of transportation systems and their relationship to land use. The effects of congestion on stability and performance, the connection between traffic flow and travel time, and steady state performance criteria are included. The evaluation of transport systems by economic and other means is discussed.

Search terms: Traffic flow patterns; Traffic congestion; Travel time; Queueing theory*; Economic analysis; Stability; Land use; Steady state; Transportation patterns; Performance characteristics

HS-005 410 Fld. 4/8; 5/4; 2/4

IDEAS PILE UP FOR DRIVERLESS CARS, AUTOMATED ROADWAYS

Anonymous

Published in *Machine Design* v40 n9 p20-24, 26-27, 29

Ideas for electronically controlled, fully automatic car-roadway systems are outlined. Highway capacity, driver comfort, and safety would be increased. Automatic highways may use individually powered vehicles, individually-powered two-mode systems using guideways, or pallet-type systems.

Search terms: Transportation systems; Urban areas, Transportation planning; Automatic highways; Automatically guided automobiles; Automobile design; Experimental vehicles; Highway safety; Automatic control; Traffic capacity; Comfort; Guideways*; Palletizing*; Electric automobiles

HS-005 450 Fld. 4/8

STATEMENT BY LOWELL K. BRIDWELL BEFORE THE OHIO SOCIETY OF PROFESSIONAL ENGINEERS, CLEVELAND

by Lowell K. Bridwell

Federal Highway Administration, Washington, D.C.

28 Mar 1968 10p

Discusses highway planning problems, including neighborhood resistance to freeway construction, the need to relocate those displaced, problems of taxation base and social stability of neighborhoods where freeways are constructed, and the need for land use planning and good communication with neighborhoods. The attempts made in Baltimore to solve these problems are outlined.

Search terms: Transportation planning; Community support; Urban highways; Highway costs; Highway planning; Land use; Urban planning; Public relations; Baltimore*; Freeway planning; Sociological aspects; Taxes

AVAILABILITY: NBSB

HS-005 498 Fld. 4/8

DESCRIPTION OF A GUIDED AUTOMATED INDIVIDUAL TRANSPORTATION SYSTEM

Grimble (L. G.) and Associates Ltd., Edmonton, Alta. (Canada)

1 Feb 1968 130p 362 refs
Report no. PB-180 024

This study determines criteria for an ideal transportation system for middle-sized Canadian cities; reviews existing or proposed transit system concepts & recommends the Guided Automobile Individual Transportation System (GAITS). The system uses computer controlled electrically

driven cars within enclosed tubes accommodating both movement of goods and passengers.

Search terms: Automatically guided automobiles; Guideways*; Experimental vehicles; Canada*; Bibliographies*; Transportation planning; Urban areas; Mass transportation; Computers; Guided Automobile Individual Transportation System*; Electric automobiles; Costs*; Automatic highways; Cargo transportation; Public transportation; Business districts; Suburban areas

AVAILABILITY: CFSTI as PB-180 024

HS-005 499 Fld. 4/8

THE FUTURE OF THE AUTOMOBILE

by Howard R. Ross

Published in *Science and Technology* n80 p14-24 (Aug 1968)

Automobile transportation is compared with future concepts of personal and mass transit. The electric vehicle, the automatic highway, the short-haul seat, the Westinghouse Transit Expressway, the Brush system, Teletrans, PERC (Personalized Capsules), are mentioned. Many of these systems will use external power sources and will be controlled by computers.

Search terms: Transportation engineering; Transportation planning; Mass transportation; Urban planning; Automatically guided automobiles; Electric vehicles; Automatic control; Automatic highways; Passenger vehicles

HS-005 574 Fld. 2/9; 4/8

GATESHEAD TRAFFIC MANAGEMENT SCHEME. (2) IMPLEMENTATION

by K. B. Madelin; J. A. Ford

Published in *Traffic Engineering and Control* v10 n3 p137-9 (Jul 1968)

Describes the introduction of a traffic control system, preceded by considerable publicity and the installation of new signs, traffic markings, and other

4/8 Transportation Systems (Cont.)

HS-005-574 (Cont.)

improvements. The new system segregates congested northbound traffic from traffic bound for the town center and provides a bus priority route.

Search terms: Great Britain*; Traffic control; Buses (vehicles); Traffic systems; Traffic flow; Traffic congestion; Central business districts; Traffic signs; Traffic markings; Public relations; Public transportation

HS-005 575 Fld. 2/9; 4/8

GATESHEAD TRAFFIC MANAGEMENT SCHEME. (1) THE TRAFFIC PROBLEM AND PROPOSALS

by K. B. Madelin; J. A. Ford

Published in *Traffic Engineering and Control* v10 n2 p80-83 (Jun 1968)

Outlines the traffic situation, bridge capacities, and bus services of the Newcastle upon Tyne and Gateshead areas. Describes the traffic control plans and illustrates them with maps.

Search terms: Traffic control; Great Britain*; Bridges (structures); Buses (vehicles); Traffic flow; Traffic systems; Public transportation

HS-005 576 Fld. 2/9; 4/8

GATESHEAD TRAFFIC MANAGEMENT SCHEME. (3) BEFORE AND AFTER STUDIES AND RESULTS

by K. B. Madelin; J. A. Ford

Published in *Traffic Engineering and Control* v10 n4 p181-4 (Aug 1968)

Before and after studies of traffic volumes, journey times, and accidents are given. Traffic volume was increased while journey time and accidents decreased. Bus service and pedestrian safety have also improved. The police traffic control load has decreased. The traffic control plan is considered successful.

Search terms: Traffic control; Police traffic services; Great

Britain*; Traffic volume; Buses (vehicles); Pedestrian safety; Time factors*; Accident rates; Travel time; Public transportation

HS-005 585 Fld. 3/8; 4/8

MEASUREMENT AND CONTROL OF ROAD TRAFFIC NOISE

by C. G. Bottom; D. M. Waters

Published in *Traffic Engineering and Control* v10 n11 p550-3 (Mar 1969) 8 refs

The cost of preventing deterioration of the environment through noise intrusion should be included in the planning of transportation systems. This article discusses measurement techniques, develops noise level standards and a traffic noise index.

Search terms: Noise reduction; Noise (sound); Acoustic measurement*; Hearing*; Motor vehicle noise; Traffic characteristics; Costs*; Transportation planning

HS-005 590 Fld. 4/8

ROAD TRANSPORT IN A RAPID TRANSIT SYSTEM

by R. F. Bennett

Published in *Institute of Transport Journal* v32 n9 p333-44 (Mar 1968)

Discusses the vital role of road transportation, both public and private, in a rapid transit system being planned for Manchester, England, and the problems of integrating road and rail passenger transportation in large urban areas. Choice must be made between preserving central city area and permitting unrestrained use of motor car; public transport is essential. Outline is given of the Manchester rapid transit study, parking policy, traffic management, bus services, and commuter railways, and what changes would be made in the system after rapid transit. Bus and car feeders to rapid transit and the use of segregated busways are contemplated.

Search terms: Transportation planning; Central business districts; Motor vehicles; Public transportation; Parking; Railroads; Traffic characteristics; Traffic planning; Buses (vehicles); Busways*; Highway planning; Urban areas; Urban

planning; Great Britain*; Mass transportation

HS-005 623 Fld. 2/4; 4/8

URBAN HIGHWAYS IN PERSPECTIVE

Automotive Safety Foundation, Washington, D. C.

10 May 1968 38p

Between 1958 and 1965 the Automotive Safety Foundation organized three conferences on highways and urban development, which formed the nucleus for many planning and cooperative activities. This report summarizes these conferences, reviews the many areas of agreement which form the foundation for current urban highway programs, and acknowledges the significant progress made in the last ten years. It also suggests steps to overcome new problems.

Search terms: Highway planning; Highway design; Transportation planning; Urban highways; Urban planning; Community support.

AVAILABILITY: Corporate author

HS-005 653 Fld. 4/8; 2/4

CRITERIA FOR LOCATING MAJOR STREETS AND URBAN FREEWAYS

Anonymous

Published in *Journal of the Highway Division, Proceedings of the American Society of Civil Engineers* v94 nHW1 p21-32 (Jun 1968)

Report by the Committee on Urban Transportation

The criteria are basically in four fields: planning, traffic engineering, engineering design, and economics. The fifth ingredient essential for proper location is coordination among the various jurisdictions and agencies responsible for transportation in a given urban area.

Search terms: Streets; Urban highways; Highway planning; Urban planning; Traffic engineering; Economic factors; Transportation planning; Government; Freeway planning

4/8 Transportation Systems (Cont.)

HS-005 654 Fld. 4/8; 4/3

VALUES OF TIME SAVINGS OF COMMERCIAL VEHICLES

by William G. Adkins; Allen W. Ward; William F. McFarland

Texas A and M Univ., College Station. Texas Transportation Inst.

1967 85p 200 refs
Report no. NCHRP-33; NAS-NRC-Pub-1478

Sponsored by the American Association of State Highway Officials, Washington, D.C. and the Bureau of Public Roads, Washington, D.C. Includes as Appendix F, "Value of Time Savings Accruing to Highway Vehicles: An Annotated Bibliography."

Methods for evaluating time savings are reviewed and analyzed. A cost savings approach to the determination of values of time savings is developed and applied to a composite cargo vehicle, a composite intercity bus, and a number of cargo vehicle types. The methods used are: revenue (net operating profit) method; cost savings method; cost-of-time method; and willingness-to-pay method. Cost saving model solutions were developed.

Search terms: Travel time; Costs*; Bibliographies; Benefit cost analysis*; Cargo transportation; Buses (vehicles); Commercial vehicles; Economic analysis; Time factors*; Transportation management

AVAILABILITY: HRB

HS-005 709 Fld. 4/8

INTEGRATED OPERATIONS SYSTEMS AND THEIR USE IN HIGHWAY TRAFFIC

by G. H. Bakke

Published in *Traffic Digest and Review* v14 n6 p12-6 (Jun 1966)

Organization and management plans for a state highway department are described. The concepts are applicable to many disciplines such as enforcement agencies, motor vehicle administration departments, traffic courts and violation bureaus, and

highway engineering organizations. Operation of this plan in Wisconsin is described, including computerized data processing.

Search terms: Computers; Data processing; Wisconsin*; Highway administration; State government; Administrative procedures; Flow charts*; Traffic administration

HS-005 763 Fld. 4/8

AN ELECTRIC SOLUTION TO THE TRAFFIC PROBLEM

Anonymous

Published in *Esquire* v61 n2 p63-7 (Feb 1968)

Describes a system of elevated highways, with a third rail to provide power and control, called guideways. System would be automatic and controlled by computers. Vehicles would be dual mode electric autos operating automatically on guideways and manually on ordinary streets. For short distance driving, conventional autos, small capsules, 10 and 40-passenger electric buses, and bus-only streets are planned. The guideways system is estimated to have ten times the carrying capacity of present highways.

Search terms: Electric automobiles; Computers; Elevated highways; Transportation planning; Buses (vehicles); Automatic highways; Guideways*; Highway design; Controlled access highways; Traffic capacity

HS-005 764 Fld. 4/8

THE HOUSTON TRANSPORTATION STUDY: O-D SURVEY PROCEDURES

by J. E. Wright

Published in *Traffic Quarterly* v15 n2 p341-351 (Apr 1961)

Survey was undertaken to analyze the nature of all transportation facilities and services in Houston area, the characteristics of all travel, population, land use, and economy as they affect travel patterns, and financial and governmental responsibilities relating to transportation facilities and services. Projections to 1980

were made.

Search terms: Transportation patterns; Populations; Traffic flow patterns; Forecasting; Travel patterns; Transportation facilities; Texas*; Land use; Transportation planning; Economic factors

HS-005 765 Fld. 4/8; 5/2

BUS ROUTES BY PUNCH CARDS

by David H. Soule

Published in *Safety: Journal of Administration, Instruction, Protection* v4 n1 p30-5 (Jan/Feb 1968)

A system for using data processing to plan school bus routes is described. What information should be recorded for each student, uses for the information in addition to bus route planning, and details of planning the system are discussed.

Search terms: Data processing; School buses; Routes; Transportation planning

HS-005 810 Fld. 4/8

RESEARCH NEEDS FOR HIGHWAY TRANSPORTATION. PROGRESS REPORT

Anonymous

Published in *Journal of the Highway Division, Proceedings of the American Society of Civil Engineers* v94 nHW1 p83-92 (Jun 1968)

Analysis of research needs of highway transportation prepared as a basis for funding. Discusses the role of transportation in society and as a service function; manpower, facility, and funding requirement for highways; and the needs for both basic and applied research.

Search terms: Highway research; Transportation planning; Highway costs; Highway planning; Sociological aspects; Manpower utilization*

HS-005 878 Fld. 4/6; 4/8

TO SOLVE AUTO PROBLEMS: REPLAN AND REBUILD INNER CITIES?

by Theodore I. Koskoff

4/8 Transportation Systems (Cont.)

HS-005-878 (Cont.)

Published in *Trial* v4 n4 p44-6
(Jun-Jul 1968)

The problem of automobile insurance in the city is discussed. Rates are higher for cars used in cities. Inner city ghetto areas pose unique problems in auto insurance. It is suggested that the automobile is unsuited for the needs of efficient, rapid, safe transit in the city society of the very near future and should be replaced by rapid transit rail systems. Increasingly dominant age groups in city society pay prohibitive insurance premiums for their cars because of their environment and their age.

Search terms: Insurance industry*; Urban areas; Inner city areas*; Rapid transit railways; Insurance rates*; Age factor in driving; Urban geography*; Urban planning

HS-005 879 Fld. 4/8; 4/1

A REALISTIC APPROACH TO PROBLEMS OF MOTOR VEHICLE AND HIGHWAY USE

by Louis R. Morony

Published in *Traffic Quarterly* v15 n2 p248-68 (Apr 1961)

The highway, the motor vehicle, and the driver must be studied together in dealing with highway transportation as a whole. Two closely-related aspects discussed in this paper are: the planning and building of adequate highway facilities and the efficient operation of highways for the highest potential of service. This second aspect includes matters concerning the vehicle and the driver. The concern of Congress over highway safety and policy, the role of state governments, and the need for thorough study of the problems are discussed. Gathering and evaluation procedures for data are outlined.

Search terms: Highway administration; Highway planning; Highway research; Highway safety; Highway usage; State government; United States Government; Data acquisition; Transportation planning; Driver-vehicle interface; Motor vehicle use studies; Legislation

HS-005 970 Fld. 3/4; 4/8

THE ROLE OF THE AUTOMOBILE IN THE FUTURE TRANSPORTATION SYSTEM

by Alan S. Boyd

Department of Transportation, Washington, D.C.

Discusses criticism of the auto as the primary American mode of transportation. Predicts that it will continue to dominate American transportation as long as people can afford it but will be increasingly supplemented by mass transit, especially in central business districts. Includes discussion of the auto insurance problem.

Search terms: Mass transportation; Central business districts; Insurance industry*; Automobiles; Transportation planning; Economic factors

AVAILABILITY: In Insurance Inst. for Highway Safety, *Driver Behavior: Cause and Effect*, 19-21 Mar 1968, p31-7 (HS-005967)

HS-006 106 Fld. 2/4; 4/8

PRELIMINARY THOROUGHFARE PLAN, ANDERSON, SOUTH CAROLINA

Harland Bartholomew and Associates, Atlanta, Ga.

Apr 1968 51p
Proj. HUD-SC-P-8 (G)
Report no. PB-179 564

Thoroughfare characteristics, traffic flow, travel time, accident history, and land use information are used to determine existing problems. Traffic flow of 1985 is estimated and future needs determined from a capacity-deficiency analysis. Recommendations for improvements to existing streets and highways and development of new ones are made.

Search terms: Highway planning; Streets; South Carolina*; Traffic flow; Travel time; Land use; Accident rates; Urban planning

AVAILABILITY: CFSTI as PB-179 564

HS-006 133 Fld. 4/8

FOURTH INTERNATIONAL CONFERENCE ON URBAN TRANSPORTATION

by Stanley T. Siegel

Published in *Traffic Engineering* v19 n7 p38-40 (Jun 1969)

Summarizes proceedings of this conference which centered on the theme: "Transportation: Lifeline of an Urban Society." The conference has been established as the leading world forum for the exchange of ideas on metropolitan transit problems.

Search terms: Conferences*; Urban areas; Transportation planning; Mass transportation; Urban planning; Public transportation

HS-006 134 Fld. 4/8; 2/4

A NEW CONCEPT IN HIGHWAY DESIGN

by Wesley R. Bellis

New Jersey. Dept. of Transportation. Trenton

(1967) 113p

Pertinent trends for accidents,

AVAILABILITY: Corporate author

4/8 Transportation Systems (Cont.)

HS-006-134 (Cont.)

injuries, and fatalities are projected for the year 2025. A solution to the traffic safety problem abandons existing road systems. Networks of one-way freeways would be established: "A-ways" for major through service and express subway service; "B-ways" for intermediate roads and subways; "C-ways" for bus service and land service roads. Pedestrian movement and parking are completely isolated. Benefits justify a projected expenditure of \$700,000,000 per year over a 50 year period for New Jersey. The benefit cost ratio was shown to be 40:1. Costs of construction could easily be paid out of the savings in reduced insurance premiums during the 50 years.

Search terms: Traffic safety; Transportation planning; Fatalities; Injuries; New Jersey*; Highway design; Costs*; Public transportation; Forecasting; Freeways; Accident rates; Benefit cost analysis*; Parking; Pedestrian-vehicle interface; Insurance rates*

AVAILABILITY: Corporate author

HS-006 135 Fld. 4/8

BETTER HIGHWAYS FOR WASHINGTON. SUMMARY REPORT: NEEDS, FINANCING, LAW

Washington. Dept. of Highways, Olympia

Feb 1969 29p

Prepared in cooperation with Bureau of Public Roads, Washington, D.C.

Highlights the facts and recommendations contained in each of three other reports: 1. Needs by Classified Urban and Rural Systems; 2. A Plan for Equitable Financing for all Roads and Streets; 3. Modern Highway Laws for Washington.

Search terms: Legislation; Washington*; Financing; Highway planning; Rural highways; Urban highways; Highway costs; Streets; Highway taxes

AVAILABILITY: Corporate author

HS-006 202 Fld. 4/8

THE BRITISH MOTORWAY

by David W. Yaseen

Published in *Traffic Quarterly* v19 n3 p413-27 (Jul 1965) 12 refs

The interurban and intraurban freeway situation in Great Britain is described. Among aspects discussed are: competition for scarce capital; conflicts with traditional land-use demands; continued importance of rail transport for passenger, as well as freight movement. Policy and financing, road control and authority, freeway (motorway) plans, and the British railway system are described. Comparisons are made with the American freeway system and the differences in needs pointed out.

Search terms: Transportation planning; Freeways; Great Britain*; Mass transportation; Railroads; Financing; Land use; Highway planning; Highway costs

HS-006 238 Fld. 4/8

THE SUBSTITUTABILITY OF COMMUNICATIONS FOR TRANSPORTATION

by Frederick W. Memmott, 3rd

Published in *Traffic Engineering* v33 n5 p20-5 (Feb 1963)

The major problems facing urban transportation are presented and the role of communications in supplementing and planning future transportation facilities is outlined. A proposed procedure for symbolic or statistical study of the substitution of communications for transportation has been developed. Person to machine interactions might be substituted for person to person interactions in some areas. Motivations for transportation are analyzed and classified into those which could or could not be satisfied by audiovisual communications.

Search terms: Transportation planning; Communication systems; Information systems; Urban planning; Audiovisual aids; Motivation studies

HS-006 310 Fld. 4/3; 2/4; 4/8

THE ECONOMIC FEASIBILITY OF AN EXPANDED ROADS

PROGRAMME

by N. F. Clark

Published in *Australian Road Research Board Proceedings of the Third Conference*, Sydney, v2 p1 p56-85 (1964) 11 refs

Includes discussion and author's closure to discussion.

An attempt is made to show how a road construction program can be economically justified and a study of costs and benefits may help determine priorities. The place of roads expenditure in the national economy, the history of allocation of resources to roads, and its future trends are discussed. The National Association of Australian State Road Authorities needs survey and its recommendations are noted. Methods of financing road expenditures are explored.

Search terms: Benefit cost analysis; Highway construction; Economic analysis; Australia; National Assoc. of Australian State Road Authorities; Highway costs; Transportation planning; Highway planning

HS-006 312 Fld. 4/8

TRANSPORTATION: THE ROAD AHEAD

Anonymous

Published in *Journal of American Insurance* v45 n1 p2-5 (Jan-Feb 1969)

Ford Motor Company's dual-mode transportation concept of the future is described. In this system automobiles and buses are manually operated until reaching an automated highway where the vehicle then becomes integrated into system and controlled electronically until reaching a transportation center at the other end. At this center buses would discharge passengers and autos would become disengaged from the system to resume their journey. Parking would be available at this point. Also discussed is a dial-a-bus concept which would permit passengers to be picked up at their doors, merged into the system, and deposited on the fringe of the central city.

Search terms: Ford Motor Co.; Highway transportation; Buses

4/8 Transportation Systems (Cont.)

HS-006-312 (Cont.)

(vehicles); Automatically guided automobiles; Automatic highways; Transportation planning; Guideways; Public transportation; Manual control; Automatic control

HS-006 313 Fld. 4/8

IF/WHEN WE COME TO POWER...
by Peter Walker

Published in *Autocar* v128 n3758
p2-5 (22 Feb 1968)

Describes what the Conservative Party in Great Britain advocates doing about traffic control, speed limits, the traffic commissioner, parking offenses, the Channel tunnel, driver education, and the highway code.

Search terms: Great Britain; Transportation planning; Speed limits; Accident prevention; Driver education; Traffic control; Freeways; Highway Safety; Traffic engineering; Parking; Traffic violations; Traffic laws; Tunnels

HS-006 472 Fld. 4/8

KEYNOTE ADDRESS TO THE
INTERNATIONAL BRIDGE,
TUNNEL AND TURNPIKE
ASSOCIATION

by Robert A. Wolf

Cornell Aeronautical Lab., Inc.,
Buffalo, N. Y.

30 Sep 1968 43p

Presented at the 36th annual meeting of the International Bridge, Tunnel and Turnpike Assoc., Chicago.

Three new concepts which could possibly become elements in our future highway system are outlined. The Urbmobile system utilizes small battery-powered cars which can be driven or moved on an automatic guideway; Century Expressway visualizes an advance type of high speed, intercity passenger road; and Super Freightway would be a specialized type of intercity highway for heavy trucking. Basic principles, advantages, and safety features of each concept are covered.

Search terms: Urbmobiles; Century expressways; Super freightways; Highway transportation; Transportation planning; Highway planning; Guideways; Cargo transportation; Trucks; Electric automobiles; High speed

AVAILABILITY: Corporate author

HS-006 527 Fld. 4/8

PLANNING OHIO'S TRANSPORTATION RESEARCH CENTER

by Johannes F. Schwar
Ohio State Univ., Columbus
1968 5p
Report no. SAE-680166

Presented at SAE's Analysis and Control of Traffic Flow Symposium, Detroit, Jan 9-10, 1968, and published in the CONFERENCE PROCEEDINGS, p5-9.

The Transportation Research Center at the Ohio State University is being planned and designed to serve as a facility for the study of the various components of the highway transportation system. The 5600-acre research complex will contain some 60-70 miles of roadways, and an extensive building complex as well as a 6000 ft. airstrip.

Search terms: Test facilities; Transportation engineering; Research centers; Ohio; Safety engineering; Highway research; Transportation planning; Ohio State Univ. Transportation Research Center

AVAILABILITY: SAE

HS-006 528 Fld. 4/8

URBAN TRANSPORTATION PLANNING-A QUESTION OF EMPHASIS

by Thomas J. Hillegass

Published in *Traffic Engineering* v19 n7 p46-8 (Jun 1969)

Urban transportation planning needs fresh viewpoints. Systems analysis is recommended for a fresh examination of the complex problems in decision-making in the planning of urban transportation. Most existing studies have placed emphasis on the ability to forecast travel demand. A nine-step process of systems analysis would give a more balanced treatment.

Search terms: Travel; Transportation planning; Urban planning; Systems analysis; Decision making

HS-006 529 Fld. 4/8

TRAFFIC-FANTASTIC!

by John C. Kohl

Published in *Traffic Engineering* v33 n6 p11, 21-2 (Mar 1963)

The problems of increasing urbanization and the growth of automobiles are discussed. It is suggested that more attention should be paid to public transportation in planning the transportation system of the future.

Search terms: Transportation planning; Urban planning; Public transportation; Motor vehicle registration; Traffic congestion

HS-006 530 Fld. 4/8

A LOGICAL URBAN TRANSPORTATION PLANNING GUIDE

by Richard C. Cowdery

Published in *Traffic Engineering* v33 n6 p23-7 (Mar 1963) 18 refs

The National Committee on Urban Transportation, now disbanded, prepared a guidebook, "Better Transportation for Your City," and a series of procedure manuals. The use of this material is recommended. The program developed by this committee has been successfully applied in some cities. Action is needed now to meet new transportation requirements and the changed pattern of urban life.

Search terms: Transportation planning; Urban areas; National Committee of Urban Transportation; Community support; Urban planning

HS-006 586 Fld. 4/8; 2/4

ARTERIAL CONGESTION CAN BE RELIEVED. PART I

by Pat Thomson

Published in *Rural & Urban Roads* v6 n12 p18-19, 22 (Dec 1968)

Some \$230 million will be spent for urban arterial construction in the next eight years within five districts of Washington State. Procedures for allocating the funds are discussed. The criteria for allocation are:

4/8 Transportation Systems (Cont.)

HS-006-586 (Cont.)

population ratio of the area, vehicle miles traveled, and ratio of state highway needs within the area.

Search terms: Arterial streets; Washington; Streets; Highway costs; Highway construction; Traffic congestion; Urban areas; Urban planning; Vehicle miles; Population density; Highway planning

HS-006 587 Fld. 4/8; 2/4

URBAN ARTERIAL ACTION. PART II

Anonymous

Published in *Rural & Urban Roads* v6 n7 p34-7 (Jan 1969)

Urban roads in Washington have been classified into three functional groups, major, secondary, and collector arterials. To determine priority for improvements, five conditions were examined: structural ability to carry loads, capacity to move traffic, adequacy of alignment and geometrics, accident experience and fatalities. Congestion was considered the most important item. The methods used to calculate these factors and assign priorities for improvements are discussed.

Search terms: Traffic congestion; Arterial streets; Arterial highways; Washington; Mathematical analysis; Accident rates; Fatalities; Highway design; Highway characteristics; Streets

HS-006 588 Fld. 4/8

TRANSPORTATION INFORMATION: A REPORT TO THE COMMITTEE ON APPROPRIATIONS, U.S. HOUSE OF REPRESENTATIVES, FROM THE SECRETARY OF TRANSPORTATION

Department of Transportation, Washington, D.C.

May 1969 255p
Report no. PB-184 974

A five-year program is presented for meeting the critical transportation information needs of industry and government at national, state, and local levels. The program provides for

information on the flows of persons and goods, the population and industry generating the flows, and the transportation facilities and terminals that carry the flows. Accident information is included. The program provides for maximum use of existing transportation information programs and a framework for consolidation and reallocation of information functions within and outside the Department of Transportation. The program will cost \$35.6 million over a five-year period, 75% for urban transportation information, 19% for interurban, 4% for international, and 2% miscellaneous.

Search terms: Transportation planning; Department of Transportation; Costs; International aspects; Information systems; Transportation facilities; Traffic flow patterns; Transportation data; Cargo transportation; Mass transportation; State government; Local government; Air transportation; Urban planning; Data acquisition; Travel patterns; Accident data; Safety programs

AVAILABILITY: CFSTI as PB-184 974

HS-006 624 Fld. 4/8

CASE FOR THE LARGE-CITY ROOFTOP HELIPORT NETWORK

by Hector P. Goffard; Jean-Denis H. Goffard

Published in *Vertiflite* v15 n9 p2-6 (Sep 1969)

Helicopter "buses" are urged to save large cities in many nations from strangulation in motorized and pedestrian traffic. It is suggested that, while traffic problems can be improved, the improvements are short-lived because of the increasing number of cars. Helicopters are urged as the solution because of their handling ease, safety, navigability. Their noise level is a disadvantage. A series of rooftop heliports is urged.

Search terms: Traffic congestion; Transportation planning; Helicopters; Helicopter characteristics; Urban planning; Noise (sound); Heliports

HS-006 698 Fld. 4/8

ASSESSING ALTERNATIVE TRANSPORTATION SYSTEMS

by James R. Miller, 3rd.

Rand Corp., Santa Monica, Calif.

Apr 1969 174p

Contract DOT-3-0008

Report no. RM-5865-DOT

A procedure for assessing the worth of alternative transportation systems has been developed. The procedure is applied to rapid New York-Washington passenger service with three alternatives to be evaluated: high-speed train, highway improvements, and an underground tube. Having determined the decision context and alternatives, it remains to predict what performance would be delivered by each alternative; to estimate the resources each would require; to assess the worth of each to diverse interest groups; to trade off these considerations, along with risk and uncertainty; and to arrive at a decision. The major thesis of the procedure is that assessment and final choice must be subjective, but the systematic method of making the judgments is helpful.

Search terms: Benefit cost analysis; Transportation planning; Mathematical analysis; Decision theory; Decision making; Railroads; Highway planning; Public transportation; Economic analysis

AVAILABILITY: Corporate author

HS-006 699 Fld. 4/8; 1/1

PREFERENCES FOR MULTI-ATTRIBUTED ALTERNATIVES

by Howard Raiffa

Rand Corp., Santa Monica, Calif.

Apr 1969 116p 16 refs

Contract DOT-3-0008

Report no. RM-5868-DOT/RC

Techniques for assessing the utility of complex alternatives are presented. A hierarchical structuring procedure for obtaining a relevant list of attributes is described and examples are given from problems of the Northeast Corridor Transportation Project and from medical treatment problems. The ideas developed are applied to various problems, particularly the problem of assessing the economic value of a life, an area of importance in both transportation and medical treatment applications.

4/8 Transportation Systems (Cont.)

HS-006-699 (Cont.)

Search terms: Benefit cost analysis; Transportation planning; Safety measures; Decision theory; Decision making; Mathematical analysis; Economic analysis; Medical services

AVAILABILITY: Corporate author

HS-006 700 Fld. 4/8

SAFETY IN TRANSPORTATION: THE ROLE OF GOVERNMENT, LAW AND INSURANCE

by Lester B. Lave

Rand Corp., Santa Monica, Calif.

Apr 1969 43p
Contract DOT-3-0008

Report no. RM-5873-DOT

One of a series of studies for the Northeast Corridor Transportation Project, this paper serves as background and preliminary conceptual model for transportation safety. The unique roles played by the interactions of passengers, government, law, and insurance are explored. Functions of insurance and liability laws and reasons for their failure in optimizing safety are discussed. Brief benefit cost statements for several traffic safety measures--motor vehicle inspection, seat belts, crash helmets are included.

Search terms: Safety devices; Insurance industry; Liability insurance; Benefit cost analysis; Safety measures; Highway safety; Law (jurisprudence); Federal regulations; Traffic safety; Transportation planning; Decision making; Federal control; Motor vehicle inspection; Seat belts; Helmets

AVAILABILITY: Corporate author

HS-006 701 Fld. 4/8

MEASUREMENT AND EVALUATION OF TRANSPORTATION SYSTEM EFFECTIVENESS

by F. S. Pardee; T. F. Kirkwood; K. L. Kraemer; K. R. MacCrimmon; J. R. Miller, 3rd; C. T. Phillips; J. W. Ranftl; K. V. Smith; D. K. Whitcomb
Rand Corp., Santa Monica, Calif.

Sep 1969 482p 86 refs
Report no. RM-5869-DOT

This report for the Northeast Corridor Transportation Project discusses development of a comprehensive and systematic methodology to evaluate the potential benefits of proposed changes in current transportation systems. Emphasis is placed on developing a structure suitable for analysis of the impact of major policy options through creation of alternative hierarchies of goal sets. One such goal set is significant improvement in transportation service while maintaining acceptable returns on investment. This set can be compared with others such as emphasizing economic development while maintaining service and revenue. In measuring the benefit of a system change, it is important to assess its impact on users, operator and supplier firms, and society. Cost-benefit analysis is applied to the choice among alternative systems.

Search terms: Transportation planning; Benefit cost analysis; Transportation data; Sociological aspects; Mass transportation; Mathematical models; Forecasting; Decision theory; Decision making; Economic analysis

AVAILABILITY: Corporate author

HS-006 759 Fld. 4/8

CAR PARKS ON RESTRICTED SITES

by John Brierley

Published in *Traffic Engineering and Control* v9 n9 p444-6 (Jan 1968)

The amount of parking space available in offices and industrial buildings is becoming increasingly important, and spare pieces of land cannot satisfy the demand for space. Multi-story parking garages and construction of extensions to present buildings are discussed. Automatic parking equipment for large buildings and parking garages for high-density housing areas are described. Large-scale parking facilities at various British sites are discussed.

Search terms: Parking; Parking garages; Parking lots; Great Britain; Urban areas; Population density

HS-006 760 Fld. 4/8

CITY PLANNING AND TRANSPORTATION: GERMANY FACES CITY TRAFFIC PROBLEMS

by Habil Johannes Schlums

Published in *Traffic Engineering* v34 n3 p20-4, 46 (Dec 1963) 14 refs

Germany has an increasing problem with traffic congestion in urban centers. Aspects of the problem discussed are: appointment of a commission to study the problem; relationships between city planning and traffic planning; equilibrium among population density, public transit, and private traffic; capacity of the transportation system; trends in motor vehicle registration and the road system; and master transportation plans and planning principles.

Search terms: Traffic congestion; Germany; Transportation planning; Urban planning; Public transportation; Motor vehicle registration; Traffic planning; Traffic characteristics; Traffic capacity; Population density

HS-006 761 Fld. 4/8

URBAN TRANSPORTATION SYSTEM CONCEPTS: SOME PERTINENT QUESTIONS

by Martin Wohl

Published in *Traffic Engineering* v34 n6 p11-3, 55-6 (Mar 1964)

Presented at National Conference on Urban Passenger Transportation, Washington, D.C., Jan 1964.

In determining solutions for transportation problems, planners and designers should ask themselves a series of questions: for whom is the system being designed; what are the area's goals and objectives; what consequences will the systems have on the community; what is the framework for comparing alternatives and compromising; how reliable are the estimates for cost, performance, value, and use; and are the alternatives presented to decision makers and the public in an understandable fashion. Planners should not concentrate on single areas of the problem nor make assumptions without examining the basis for them.

Search terms: Transportation planning; Urban planning; Costs; Decision making; Sociological aspects; Socioeconomic data

HSL RELATED AREAS BIBLIOGRAPHY 1969